# RGS-2000NG

## TCAS Test Set

## Operation Manual

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# RGS-2000NG

## TCAS Test Set

Operation Manual

139187 / Rev. 500

VIAVI Solutions
1-844-GO-VIAVI
www.viavisolutions.com

# SAFETY INFORMATION

## SAFETY FIRST: TO ALL OPERATIONS PERSONNEL

**REFER ALL SERVICING OF UNIT TO QUALIFIED TECHNICAL PERSONNEL. THIS UNIT CONTAINS NO OPERATOR SERVICEABLE PARTS.**

**WARNING: USING THIS EQUIPMENT IN A MANNER NOT SPECIFIED BY THE ACCOMPANYING DOCUMENTATION MAY IMPAIR THE SAFETY PROTECTION PROVIDED BY THE EQUIPMENT.**

**AVERTISSEMENT : L'UTILISATION DE CET ÉQUIPEMENT D'UNE MANIÈRE NON SPÉCIFIÉE DANS LA DOCUMENTATION ACCOMPAGNANTE PEUT NUIRE AUX PROTECTIONS DE SÉCURITÉ OFFERTES PAR L'ÉQUIPEMENT.**

**CASE, COVER OR PANEL REMOVAL**

**WARNING: OPENING THE CASE ASSEMBLY EXPOSES THE OPERATOR TO ELECTRICAL HAZARDS THAT CAN RESULT IN ELECTRICAL SHOCK OR EQUIPMENT DAMAGE. DO NOT OPERATE THIS TEST SET WITH THE CASE ASSEMBLY OPEN.**

**AVERTISSEMENT : L'OUVERTURE DE L'ENCEINTE EXTÉRIEURE DE L'ÉQUIPEMENT EXPOSE L'UTILISATEUR A DES RISQUES ÉLECTRIQUES QUI PEUVENT PROVOQUER UNE ÉLECTROCUTION OU DES DOMMAGES A L'ÉQUIPEMENT. N'UTILISEZ PAS CET EQUIPEMENT SANS SON ENCEINTE EXTÉRIEURE.**

**SAFETY IDENTIFICATION IN TECHNICAL MANUAL**

This manual uses the following terms to draw attention to possible safety hazards, that may exist when operating or servicing this equipment.

**CAUTION: THIS TERM IDENTIFIES CONDITIONS OR ACTIVITIES THAT, IF IGNORED, CAN RESULT IN EQUIPMENT OR PROPERTY DAMAGE (E.G., FIRE).**

**WARNING: THIS TERM IDENTIFIES CONDITIONS OR ACTIVITIES THAT, IF IGNORED, CAN RESULT IN PERSONAL INJURY OR DEATH.**

**SAFETY SYMBOLS IN MANUALS AND ON UNITS**

⚠ **CAUTION:** Refer to accompanying documents. (This symbol refers to specific CAUTIONS represented on the unit and clarified in the text.)

⏦ **AC OR DC TERMINAL:** Terminal that may supply or be supplied with AC or DC voltage.

⎓ **DC TERMINAL:** Terminal that may supply or be supplied with DC voltage.

∿ **AC TERMINAL:** Terminal that may supply or be supplied with AC or alternating voltage.

**WARNING: IMPROPER GROUNDING OF EQUIPMENT CAN RESULT IN ELECTRICAL SHOCK.**

**AVERTISSEMENT : UNE MAUVAISE MISE À LA TERRE DE L'ÉQUIPEMENT PEUT ENTRAINER UNE ÉLECTROCTION.**

**WARNING: TO PREVENT ELECTRICAL SHOCK OR DAMAGE TO EQUIPMENT: VERIFY THAT ALL THE CONNECTIONS BETWEEN THE EQUIPMENT AND A DEVICE UNDER TEST DO NOT EXCEED MAXIMUM PORT RATINGS FOR VOLTAGE, CURRENT AND POWER.**

**AVERTISSEMENT : POUR ÉVITER TOUT CHOC ÉLECTRIQUE OU D'ENDOMMAGER L'ÉQUIPEMENT: VÉRIFIEZ QUE TOUTES LES INTERCONNEXIONS ENTRE L'ÉQUIPEMENT ET UN PÉRIPHÉRIQUE TESTÉ NE DÉPASSENT PAS LES VALEURS MAXIMALES POUR LA TENSION, LE COURANT ET LA PUISSANCE DE CHAQUE PORT.**

**POWER CORDS**

Power cords must not be frayed, broken nor expose bare wiring when operating this equipment.

**CAUTION:** **SIGNAL GENERATORS CAN BE A SOURCE OF ELECTROMAGNETIC INTERFERENCE (EMI) TO COMMUNICATION RECEIVERS. SOME TRANSMITTED SIGNALS CAN CAUSE DISRUPTION AND INTERFERENCE TO COMMUNICATION SERVICES OUT TO A DISTANCE OF SEVERAL MILES. USERS OF THIS EQUIPMENT SHOULD SCRUTINIZE ANY OPERATION THAT RESULTS IN RADIATION OF A SIGNAL (DIRECTLY OR INDIRECTLY) AND SHOULD TAKE NECESSARY PRECAUTIONS TO AVOID POTENTIAL COMMUNICATION INTERFERENCE PROBLEMS.**

**ATTENTION :** **LES GÉNÉRATEURS DE SIGNAUX PEUVENT CONSTITUER UNE SOURCE D'INTERFÉRENCES ÉLECTROMAGNÉTIQUES (IME) POUR DES RÉCEPTEURS RADIO. CERTAINS SIGNAUX ÉMIS PEUVENT PROVOQUER DES INTERFÉRENCES ET DES INTERRUPTIONS DE COMMUNICATIONS SUR UNE DISTANCE DE PLUSIEURS KILOMÈTRES. LES UTILISATEURS DE CET ÉQUIPEMENT DOIVENT EXAMINER SOIGNEUSEMENT TOUT FONCTIONNEMENT PROVOQUANT LE RAYONNEMENT D'UN SIGNAL (DIRECT OU INDIRECT) ET ILS DOIVENT PRENDRE LES DISPOSITIONS NÉCESSAIRES AFIN D'ÉVITER DES PROBLÈMES POTENTIELS D'INTERFÉRENCES AVEC DES COMMUNICATIONS.**

# INTRODUCTION

This manual contains operating instructions for the RGS-2000NG. Viavi strongly recommends that personnel be thoroughly familiar with the contents of this manual before attempting to operate the equipment.

Refer all servicing of unit to qualified technical personnel.

### Intended Audience

This manual is intended for personnel who are familiar with avionics test systems and associated equipment and terminology.

### Organization

This manual is divided into the following Chapters and Sections:

### CHAPTER 1-OPERATION

Section 1 DESCRIPTION

Section 2 OPERATION (installation; description of controls, connectors and indicators; menus and screens; operating procedures; remote operation; SDX Command Set Compatibility Table)

Section 3 SPECIFICATIONS

Section 4 SHIPPING

Section 5 STORAGE

## Electromagnetic Compatibility:

For continued EMC compliance, all external cables must be shielded and three meters or less in length.

## Nomenclature Statement:

In this manual RGS-2000NG, Test Set or Unit refers to the RGS-2000NG TCAS Test Set.

## Product Warranty

Refer to https://www.viavisolutions.com/en-us/literature/viavi-manufacturer-warranty-avionics-communications-and-synthetic-test-monitoring-and-control-en.pdf for the Product Warranty information.

## Declaration of Conformity

The Declaration of Conformity Certificate included with the unit should remain with the unit.

VIAVI recommends the operator reproduce a copy of the Declaration of Conformity Certificate to be stored with the Operation Manual for future reference.

# TABLE OF CONTENTS

## Chapter 3 - Specifications

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# LIST OF FIGURES

# LIST OF TABLES

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# SERVICE UPON RECEIPT OF MATERIAL

### Unpacking

Special-design packing material inside the shipping container provides maximum protection for the RGS-2000NG. Avoid damaging the shipping container and packing material during equipment unpacking.

Use the following steps for unpacking the RGS-2000NG.

| STEP | PROCEDURE |
|---|---|
| **1** | Cut and remove the sealing tape on top of the shipping container and open the shipping container. |
| **2** | Remove the top packing mold. |
| **3** | Remove RGS-2000NG and packing material from the bottom packing mold. |
| **4** | Remove the protective plastic bag from the RGS-2000NG and inspect the contents. |
| **5** | Place the protective plastic bag and packing material inside the shipping container. |
| **6** | Store the shipping container for future use should the RGS-2000NG need to be returned/shipped. |

### Checking Unpacked Equipment

Check the equipment for damage incurred during shipment. If the equipment has been damaged or if items seem to be absent from the shipment, report the damage and/or discrepancies to Viavi Customer Service.

### Contact Information

Contact VIAVI Customer Service for technical support or with any questions regarding this or any other VIAVI products.

"Phone: 844-GO-VIAVI

email: AvComm.Service@viavisolutions.com

For the latest information, go to:

https://www.viavisolutions.com/en/services-and-support/support/technical-assistance.

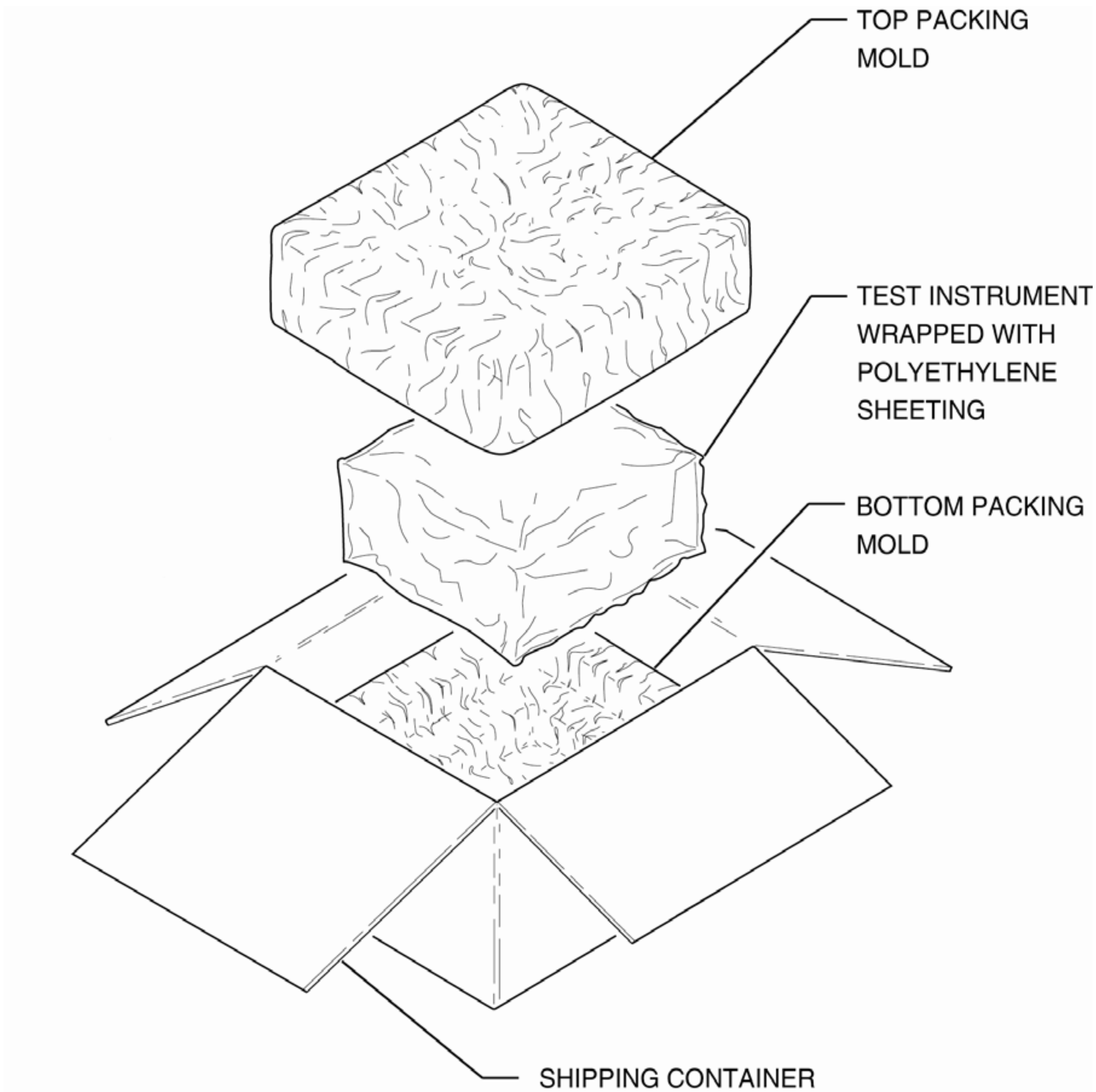



**Figure 1** Packaging Diagram

# STANDARD ITEMS

| DESCRIPTION | PART NUMBER | QTY |
|---|---|---|
| RGS-2000NG TCAS Test Set | 113956 | 1 |
| Manual, Getting Started (Paper) | 139190 | 1 |
| Manual, Operation (CD) | 139187 | 1 |
| Power Cable (AC) (110 Use) (US Only) | 62302 | 1 |
| Power Cables (AC) (220 Use) (Europe) | 64020 | 1 |
| Touchpad | 114114 | 1 |

**RGS-2000NG**
**113956**

**Touchpad**
**114114**

**Manual, Operation (CD)**
**139187**


**Manual, Getting Started (Paper)**
**139190**


**Power Cable (AC) (110 Use) (US Only)**
**62302**

**Power Cables (AC) (220 Use) (Europe)**
**64020**

# OPTIONAL ITEMS

| DESCRIPTION | OPTION NUMBER | PART NUMBER |
|---|---|---|
| Rockwell Collins Compatibility Option | RGSNGOPT01 | 114343 |
| Honeywell Compatibility Option | RGSNGOPT02 | 114344 |
| Avidyne Compatibility Option | RGSNGOPT03 | 138431 |
| ACSS Compatibility Option | RGSNGOPT04 | 138453 |
| Selex Compatibility Option | RGSNGOPT05 | 139363 |
| Garmin Compatibility Option | RGSNGOPT06 | 139362 |
| Transponder Test Option | RGSNGOPT10 | 114342 |
| SDX-2000 Command Set Compatibility Option (requires Transponder Test Option) | RGSNGOPT11 | 139892 |
| UAT 978 MHz Option (requires Transponder Test Option) | RGSNGOPT13 | 140109 |
| Multi-Receiver Option (requires Transponder Test Option) (Future) | RGSNGOPT14 | 140110 |
| DO-260B MOPS Test Option (requires Transponder Test Option) (Future) | RGSNGOPT15 | 140121 |

# Chapter 1 - Description

## 1. GENERAL DESCRIPTION AND CAPABILITIES

### 1.1 DESCRIPTION


The RGS-2000NG TCAS Test Set is an RF Signal Generator/Receiver for testing TCAS (Traffic Alert and Collision Avoidance System) with an option available for testing Transponder LRUs.

### 1.2 FUNCTIONAL CAPABILITIES

The RGS-2000NG has the following features and capabilities:

- 10.4 inch touch screen LCD display for operator control of all test set capabilities or can be remotely controlled via GPIB or Ethernet
- Legacy command sets supported:
    - RGS-2000
- Support for current standards:
    - ADS-B, DO-260, DO-260A, DO-260B
    - UAT, DO-282B (Optional)
    - TCAS, DO-185A, DO-185B
    - TCAS II Hybrid Surveillance, DO-300
    - ATRCRBS/Mode S, DO-181E (Optional)
- Simulates 32 dynamic / 568 static intruders
- Transponder test capability for Modes 3/A, C and S (Optional)
- ADS-B squitter encode/decode
- Four port antenna simulation
- Contains six transmitters
- Enhanced measurement capabilities
- TX/RX data logging capability
- Capable of performing most MOPS tests for DO-185A, DO-185B, DO-260, DO-260A, DO-260B, DO-181E and DO-300 (with appropriate Options).
- UAT, DO-282B (Optional)

- Equipment tested:
    - TCAS Computers
    - ADS-B IN Receivers
    - ADS-B IN Ground Station Receivers
    - ADS-R. TIS-B Ground Station Transmitters
    - Transponders Mode S/ADS-B Out (Transponder Test Option)
    - UAT Transceivers (UAT Option)

# Chapter 2 - Operation

## 1. INSTALLATION

### 1.1 GENERAL

#### 1.1.1 BENCH USE

When used in a Bench environment, the RGS-2000NG should be placed on a dry, level work surface.

#### 1.1.2 RACK MOUNT

Contact Customer Service for information about installing the RGS-2000NG in an equipment rack.

### 1.2 SAFETY PRECAUTIONS

The following safety precautions must be observed during installation and operation. Viavi assumes no liability for failure to comply with any safety precaution outlined in this manual.

#### 1.2.1 COMPLYING WITH INSTRUCTIONS

Installation/operating personnel should not attempt to install or operate the RGS-2000NG without reading and complying with instructions contained in this manual. All procedures contained in this manual must be performed in exact sequence and manner described.

#### 1.2.2 GROUNDING POWER CORD

**WARNING:** **DO NOT USE A THREE-PRONG TO TWO-PRONG ADAPTER PLUG. DOING SO CREATES A SHOCK HAZARD BETWEEN THE CHASSIS AND ELECTRICAL GROUND.**

**AVERTISSEMENT :** **N'UTILISEZ PAS D'ADAPTATEUR DE TROIS BROCHES À DEUX BROCHES. UN TEL ADAPTATEUR CRÉE UN DANGER DE CHOC ENTRE LE CHÂSSIS ET LA MASSE.**

For AC operation, the AC Line Cable is equipped with standard three-prong plug and must be connected to a properly grounded three-prong receptacle that is easily accessible. It is the customer's responsibility to:

- Have a qualified electrician check receptacle(s) for proper grounding.
- Replace any standard two-prong receptacle(s) with properly grounded three-prong receptacle(s).

#### 1.2.3 VENTILATION

The RGS-2000NG is air-cooled by fans that draw air through vents in the case. Do not obstruct the air vents while the instrument is in use. Avoid standing the instrument on or close to other equipment that is hot.

#### 1.2.4 OPERATING SAFETY

**WARNING:** **DUE TO POTENTIAL FOR ELECTRICAL SHOCK WITHIN THE TEST SET, THE CASE ASSEMBLY MUST BE CLOSED WHEN THE TEST SET IS CONNECTED TO AN EXTERNAL POWER SOURCE.**

**AVERTISSEMENT :** **EN RAISON DU RISQUE DE CHOC ÉLECTRIQUE DANS LE DISPOSITIF DE TEST, SON BOÎTIER DOIT ÊTRE FERMÉ LORSQUE LE DISPOSITIF EST CONNECTÉ À UNE SOURCE D'ALIMENTATION EXTERNE.**

#### 1.2.5 CAUTION AND WARNING LABELS

Extreme care should be exercised when performing any operations preceded by a CAUTION or WARNING label. CAUTION labels appear where possibility of damage to equipment exists and WARNING labels denote conditions where bodily injury or death may result.

### 1.3 AC POWER REQUIREMENTS

The RGS-2000NG power supply operates over a voltage range of 100 to 240 VAC at 60 to 50 Hz.

### 1.4 EXTERNAL CLEANING

**CAUTION:** **DISCONNECT POWER FROM TEST SET TO AVOID POSSIBLE DAMAGE TO ELECTRONIC CIRCUITS.**

**ATTENTION :** **DÉBRANCHEZ L'ALIMENTATION DU DISPOSITIF DE TEST AFIN D'ÉVITER D'ENDOMMAGER LES CIRCUITS ÉLECTRONIQUES.**

The following are instructions for cleaning the outside of the Test Set.

- Clean front panel buttons and display face with soft lint-free cloth. If dirt is difficult to remove, dampen cloth with water and a mild liquid detergent.
- Remove grease, fungus and ground-in dirt from surfaces with soft lint-free cloth dampened (not soaked) with isopropyl alcohol.
- Remove dust and dirt from connectors with soft-bristled brush.
- Cover connectors, not in use, with suitable dust cover to prevent tarnishing of connector contacts.
- Clean cables with soft lint-free cloth.
- Paint exposed metal surface to avoid corrosion.

### 1.5 POWER ON/OFF PROCEDURES

#### 1.5.1 POWER ON PROCEDURE

Refer to 1.2.2. - Controls, Connectors and Indicators, Figure 1.2.2 - 1 and Figure 1.2.2 - 2 for location of controls, connectors or indicators.

STEP PROCEDURE

**1** Connect the AC Power Cable to the Rear Panel Power Connector and to an external AC power source (100 to 240 VAC at 60 to 50 Hz).

**NOTE:** **THE AC POWER CABLE IS USED TO FULLY DISCONNECT THE TEST SET FROM AC POWER. THE TEST SET SHOULD NOT BE POSITIONED SO THE DISCONNECTION OF THE AC POWER CABLE IS PREVENTED.**

**REMARQUE :** **LE CÂBLE D'ALIMENTATION C.A. SERT À COUPER COMPLÈTEMENT L'ALIMENTATION C.A. DU DISPOSITIF DE TEST. LE DISPOSITIF DE TEST NE DOIT PAS ÊTRE PLACÉ D'UNE MANIÈRE QUI EMPÊCHE LE DÉBRANCHEMENT DU CÂBLE D'ALIMENTATION C.A.**

**2** Set the Rear Panel Power Switch to the ON position (I).

**3** Press the Front Panel Power Button to power ON the Test Set.

**4** Verify the Power Button Indicator illuminates.

**5** Wait while the Test Set completes the power-up sequence.

**6** When the RGS-2000NG is ready for operation the RGS-2000NG Home Screen is displayed as shown in Figure 1.2.1 - 1.

Refer to 1.2.3. - Screen Layout and Navigation for information about how to control and navigate the RGS-2000NG user interface.

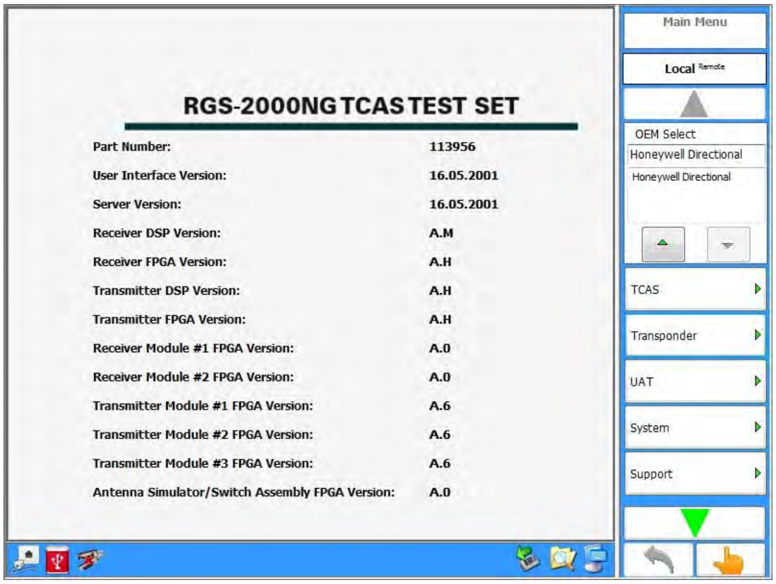



Figure 1.2.1 - 1 RGS-2000NG Main “Home” Screen

### 1.5.2 POWER OFF PROCEDURE

| STEP | PROCEDURE |
|---|---|
| **1** | Press and release the Front Panel Power Button. |
| **2** | Wait while the Test Set completes the power down process. |
| **3** | Place the Rear Panel Power Switch in the OFF position (O). |
| **4** | For long term storage, disconnect the Test Set from the AC Power Supply. |

## 1.6 REMOTE (VNC) CONNECTION

The RGS-2000NG can be controlled using an external Host Controller such as a computer, tablet or Smartphone and a Tight VNC Viewer client. This section describes how to establish a remote connection with the RGS-2000NG using the Tight VNC Viewer Software Tool.

For more information about Tight VNC, and for information about downloading Tight VNC Viewer, go to ***http://www.tightvnc.com***.

**NOTE: READ THIS PROCEDURE THOROUGHLY BEFORE PROCEEDING. PAY ATTENTION TO ANY NOTES OR SPECIAL INSTRUCTIONS PROVIDED IN THIS SECTION.THIS SECTION CONTAINS IMAGES OF TIGHT VNC VIEWER WINDOWS FOR REFERENCE ONLY. IMAGES ARE FROM TIGHT VNC VIEWER VERSION 2.5.1. IMAGES MAY VARY FROM OTHER VERSIONS OF THE APPLICATION.**

### 1.6.1 PRELIMINARY PROCEDURE

#### 1.6.1.1 Install Tight VNC Viewer

Download and install Tight VNC Viewer on the host controller (i.e., computer, tablet or Smartphone). The installation procedure is a guided installation procedure. The installation default settings are valid with the RGS-2000NG except as noted below.

**NOTE: WHEN INSTALLING TIGHT VNC, UNCHECK THE TIGHTVNC SERVICE CONFIGURATION OPTIONS (SHOWN BELOW) ON THE "SELECT ADDITIONAL TASKS SCREEN."**

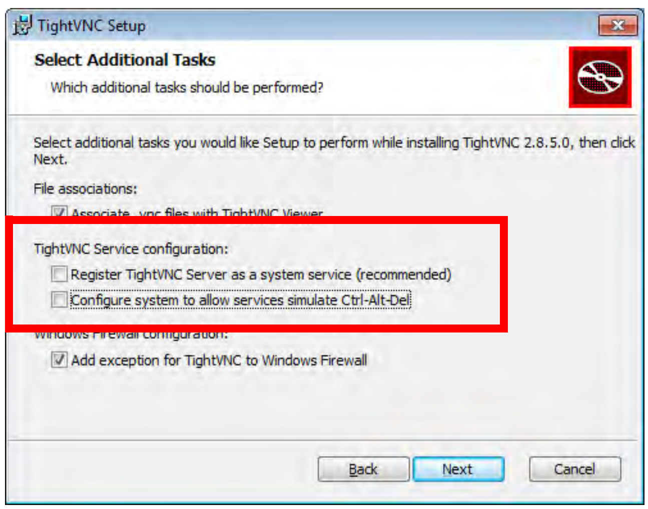



Figure 1.2.1 - 2 Tight VNC Viewer Installation Settings

#### 1.6.1.2 Establish Test Set Network Connection

In order to establish a remote connection between the Test Set and Host Controller, the Test Set and Host Controller must be connected to the same Local Area Network (LAN). Refer to section 3.7.1, Network Connections Screen for information about connecting the Test Set to a network.

**NOTE:**

Make note of the Test Set's IP Address: it is needed to establish a Remote VNC Connection.

### 1.6.2 ESTABLISH VNC CONNECTION

STEP PROCEDURE

**1** Verify the Host Controller and Test Set are both connected to the same LAN.

**2** Obtain the Test Set's IP Address (refer to 3.7.1, Network Connections Screen).

**3** Open the TightVNC Application on the Host Controller.

**4** Enter the Test Set's IP Address in the Remote Host field. Select the Connect Button to initialize the connection.

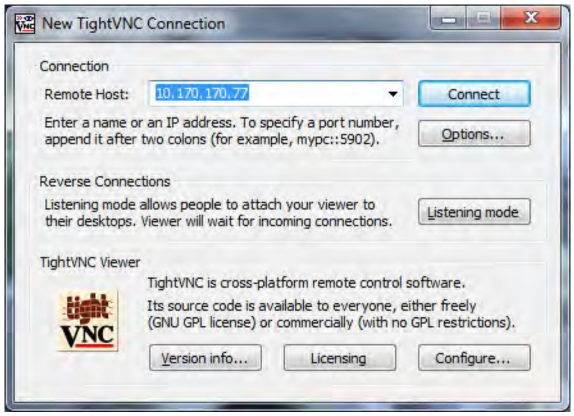



Figure 1.2.1 - 3 VNC Viewer Connection Window

**5** When prompted, enter the RGS-2000NG password in the field on the VNC Authentication Window and select the OK Button.

**Default VNC Password:** rgs

**NOTE:** **THE OPERATOR MAY CHANGE THIS PASSWORD USING THE VNC VIEWER APPLICATION (REFER TO SECTION 1.6.4, Change Tight VNC Password.**

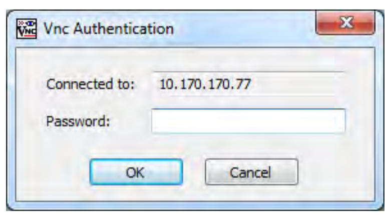



Figure 1.2.1 - 4 VNC Viewer Password Prompt

**6** Once the password has been authenticated, a VNC Viewer Window is displayed on the Host Controller showing the current RGS-2000NG screen.

**7** To exit the VNC Session, close the VNC Viewer Window.

### 1.6.3 TROUBLESHOOTING VNC CONNECTION

#### 1.6.3.1 Verify Network Connections

- Verify the Host Controller (i.e., computer, tablet, Smartphone) and Test Set are connected to the same LAN.
- Verify the correct LAN IP Address has been entered into the TightVNC Connection Window. For example, the IP Address for the active LAN Connection and not an internal Test Set IP.

#### 1.6.3.2 Tight VNC Password Error

The following error message indicates the Test Set's VNC Password was not valid:

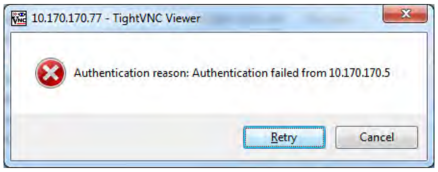



Figure 1.2.1 - 5 Tight VNC Authentication Error (Password Error)

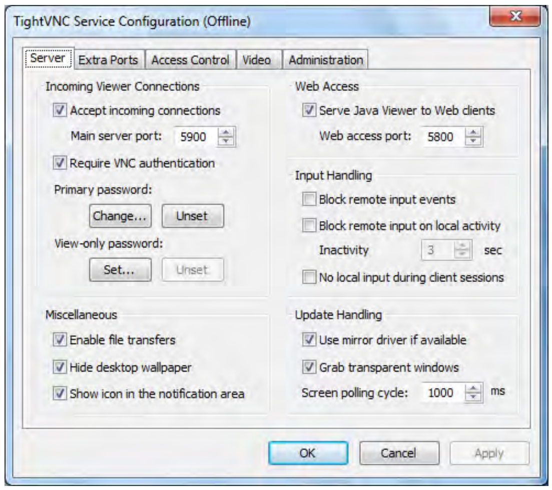
**Possible Cause of Error:**

- Password was entered incorrectly (i.e., Caps Lock was on).
- Correct password was entered (i.e., Default Password may have been changed).

### 1.6.4 CHANGE TIGHT VNC PASSWORD

Perform the following steps to reset the RGS-2000NG password.:

| STEP | PROCEDURE |
|---|---|
| 1 | Connect a mouse and keyboard to the RGS-2000NG Front Panel USB Connector. Power on the Test Set (1.5.1, Power On Procedure). |
| 2 | When the Test Set is ready for use, press the Windows Explorer Button. Wait for the Windows desktop to be displayed. |
| 3 | Open the Start Menu. Navigate to All Programs\TightVNC\TightVNC Server (Service Mode) and select the TightVNC Service Configuration program. |
| 4 | With the TightVNC Service Configuration screen displayed, select the Server Tab. Under Primary Password select Change or Unset button. |




| STEP | PROCEDURE |
|---|---|
| 5 | Enter the new password in both fields and press OK. Select the Apply Button and the OK Button at the bottom of the window. |
| 6 | Restart the RGS-2000NG, allowing the Test Set to boot normally. Refer to Section 1.6.2, Establish VNC Connection for instructions to establish a VNC Connection. |

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# 2. CONTROLS, CONNECTORS AND INDICATORS

## 2.1 FRONT PANEL

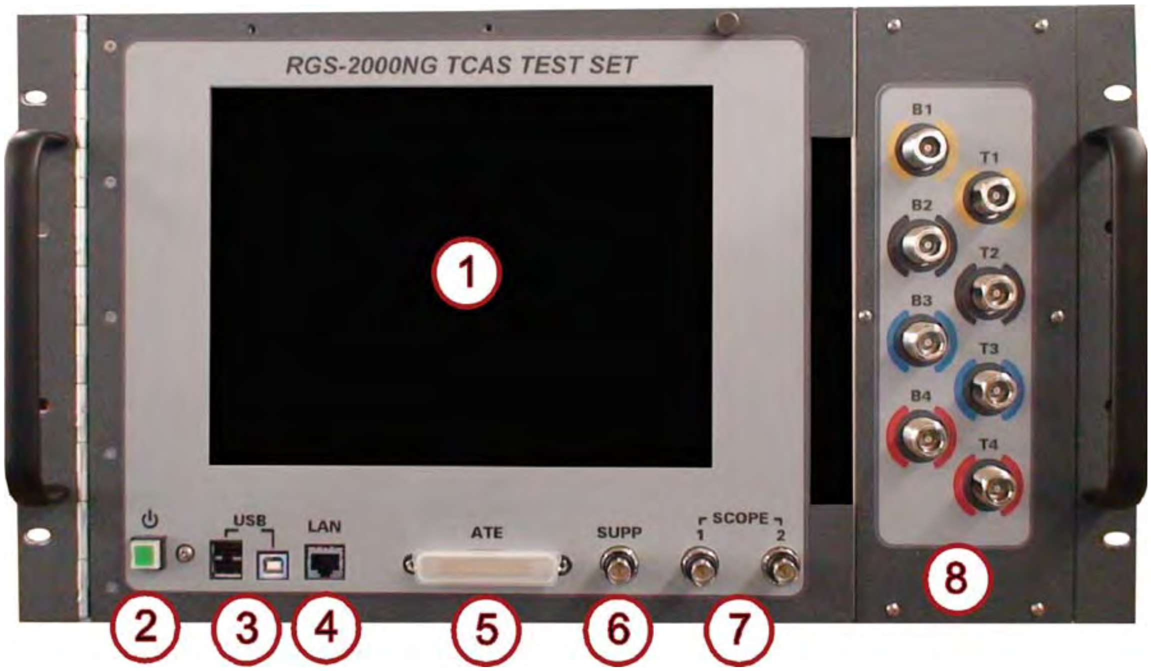



Figure 1.2.2 - 1 RGS-2000NG Front Panel

Refer to Figure 1.2.2 - 1 for location of Front Panel controls, connectors or indicators.

| Idx # | Item Name | Description |
|---|---|---|
| 1 | **Color LCD Touch Screen Display** | Used to interact with the Test Set menus. |
| 2 | **Power Button** | Used for turning the Test Set ON and OFF. Indicator is lit when the Test Set is ON. |
| 3 | **USB Connectors** | Type A Connectors used for interface to external USB devices (keypad, mouse, flash drive, etc.)<br>Type B Connector used for remote control of the Test Set. |
| 4 | **LAN Connector** | Used for remote control of the Test Set via TCP/IP. |
| 5 | **ATE Line Connector** | Used for connection to external equipment. The connector contains discrete inputs, discrete outputs and 429 Tx/Rx. |
| 6 | **SUPP Connector** | Used for testing of the UUT (suppressor output). |
| 7 | **SCOPE Connectors** | Used for testing of the UUT. |

| | | |
|---|---|---|
| 8 | **Antenna Connectors (B1, B2, B3, B4, T1, T2, T3, T4)** | Used for testing of the UUT.<br>**NOTE: TRANSPONDER TESTING IS CONDUCTED ON ANTENNA PORTS T2 AND B2 WHEN OEM COLLINS MAGNITUDE IS SELECTED. FOR ALL OTHER OEM OPTIONS TRANSPONDER TESTING IS EXECUTED ON ANTENNA PORTS T1 AND B1.** |

## 2.2 REAR PANEL

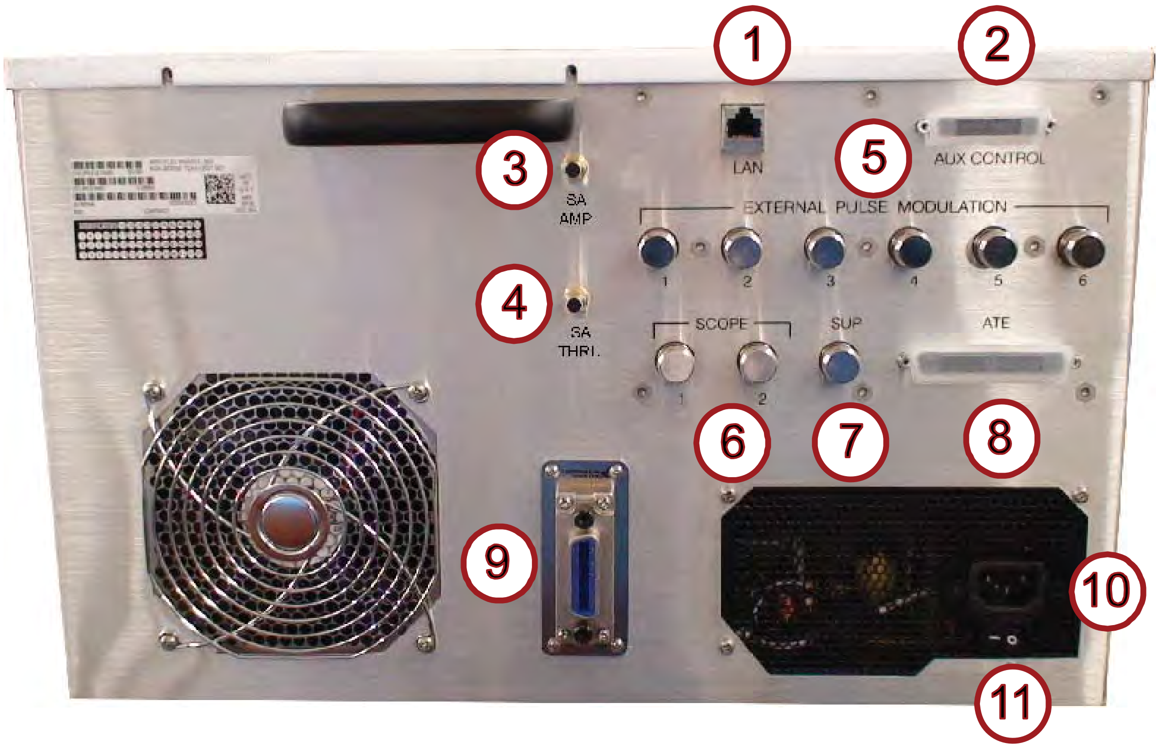



Figure 1.2.2 - 2 RGS-2000NG Rear Panel

Refer to Figure 1.2.2 - 2 for location of Rear Panel controls, connectors or indicators.

| Idx # | Item | Description |
|---|---|---|
| 1 | **LAN Connector** | Used for remote control of the Test Set via TCP/IP. |
| 2 | **AUX CONTROL Connector** | Future Use |
| 3 | **SA AMP Connector** | Used for RF sample output that is coupled and amplified from both the Top and Bottom Receivers. (Typically used with a diode detector.) |
| 4 | **SA THRU Connector** | Used for RF sample output that is coupled from both the Top and Bottom Receivers. (Typically used with a Spectrum Analyzer.) |
| 5 | **EXTERNAL PULSE MODULATION Connectors** | Used for I/O applications with external equipment. |
| 6 | **SCOPE Connectors** | Used for testing of the UUT. |
| 7 | **SUPP Connector** | Used for testing of the UUT (suppressor output). |
| 8 | **ATE Line Connector** | Used for connection to external equipment. The connector contains discrete inputs, discrete outputs and 429 Tx/Rx. |

| | | |
|---|---|---|
| 9 | **GPIB Bus Connector** | 24-pin female connector conforming to IEEE standard 488-1978 for interface of general purpose programmable instrumentation. |
| 10 | **Power Connector** | Standard 3-prong power receptacle for connection to AC power source (100 to 240 VAC at 50 to 60 Hz). |
| 11 | **Power Switch** | Connects (I) or disconnects (O) external AC power from the RGS-2000NG. |

# 3. SCREEN LAYOUT AND NAVIGATION

**NOTE: THE SCREEN IMAGES SHOWN IN THIS SECTION ARE REPRESENTATIONS OF THE SCREENS THAT USERS MAY ENCOUNTER WHEN USING THE TEST SET.**

**SOME SCREEN IMAGES CONTAIN OPTIONAL FUNCTIONS WHICH ARE SHOWN FOR DISPLAY PURPOSES ONLY AND WHICH MAY NOT BE ENABLED ON YOUR TEST SET.**

## 3.1 SCREEN LAYOUT

The RGS-2000NG Screen is divided into three sections: the Main Display Area, a Softkey Menu, and a Status/Task Bar at the bottom. The appearance and layout of the Screen depends on the function the selected mode of operation and the function being performed. Figure 1.2.3 - 1 and Figure 1.2.3 - 2 show examples of different RGS-2000NG Screens.

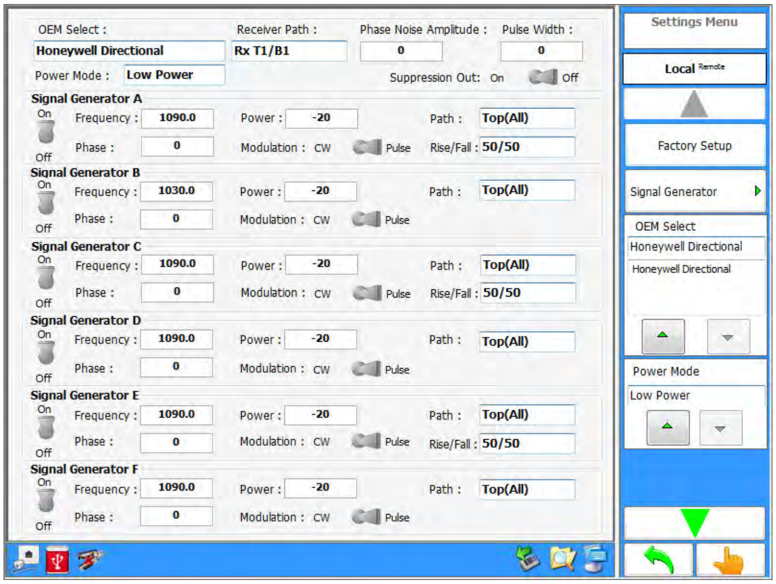



**Figure 1.2.3 - 1 TCAS Settings Screen**

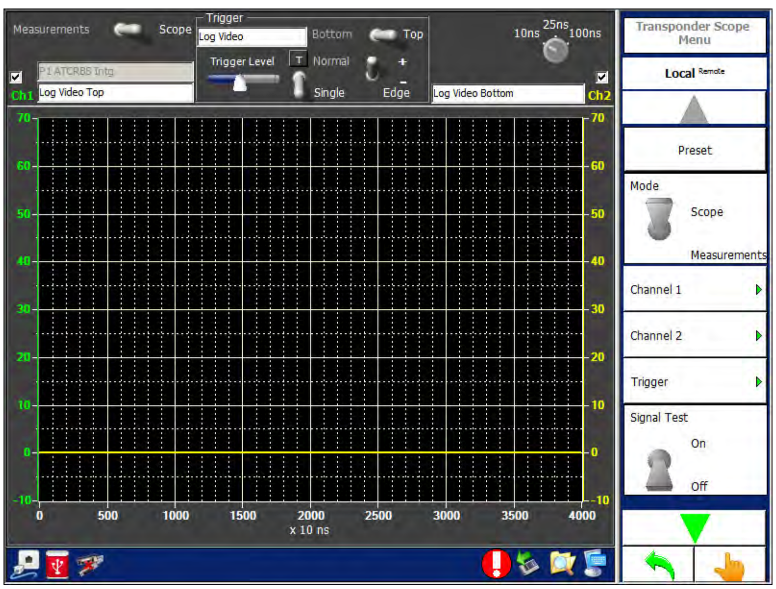


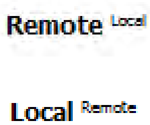
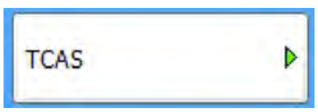
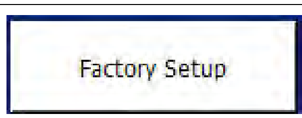
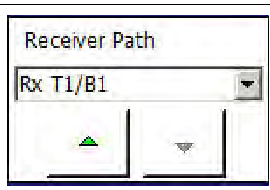
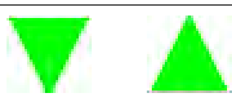
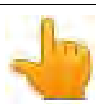
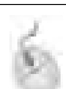

**Figure 1.2.3 - 2 Transponder Measurement Screen**

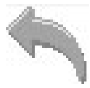
### 3.1.1 MAIN DISPLAY AREA

The content of the Main Display Area changes depending on the selected test mode and selected function. This area may display setting fields as shown in Figure 1.2.3 - 1 or measurement data as shown in Figure 1.2.3 - 2.

### 3.1.2 SOFTKEY MENU

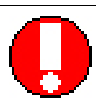
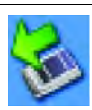
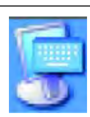
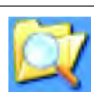
The Softkey Menu contains softkeys which are used to access Test Set functions, define settings and navigate the User Interface. The table below describes the types of softkeys found on various RGS-2000NG Screens.

| Softkey | Description |
|---|---|
|  | The Mode of Operation Button indicates the Test Set mode of operation.<br>Local Mode - All controls on the Touch Screen are enabled and the Test Set is controlled using the Touchscreen Data Entry Tools. Refer to Section 3.2.2, Touch Screen Data Entry Tools.<br>Remote Mode - Remote indicates the Test Set is being controlled using a an external via Remote Programming Commands. Remote Mode is enabled and disabled via the remote script. Refer to Section 2, Remote Operation. |
|  | Function Softkeys and Menu Softkeys are identified by a button with a green arrow. These softkeys are used to access additional user screens and settings.<br>Menu Softkey: Updates the Softkey Menu to display a softkey sub-menu that contains additional parameters for the selected softkey.<br>Examples: TCAS Softkey, TCAS Settings Softkey and TCAS Signal Generator Softkey<br>Function Softkey: Displays another Screen and corresponding Softkeys for the selected function.<br>Examples: TCAS Block Transmission Softkey, TCAS Scenario Softkey |
|  | Action Softkeys perform a function. Pressing an Action Softkey initiates the specified function.<br>Examples: Clear Softkey, Refresh Softkey, Export Softkey |
|  | A Setting Softkey contains controls that are used to define a Test Set parameter.<br>In some instances the fields and parameters present on Setting Softkeys are the same as the fields and parameters that are shown on the Main Display Area. |
|  | Green Arrow Softkeys indicate when a menu can be advanced up or down to access additional softkeys.<br>Arrow Softkeys are grey when inactive (indicates end of Softkey Menu). |
|  | Touch Screen Mode - Selects Touch Screen Mode as the primary means of editing and navigating the Test Set's Screens. When using Touchscreen Mode, pressing a setting field displays a numeric keypad, keyboard or listbox for selection or entry of the parameter.<br>Refer to section 3.2, Data Entry Modes. |
|  | Device Mode - Selects Device Mode as the primary means of editing and navigating the Test Set's Screens. The fields on the Main User screen can be modified using an external mouse or keypad.<br>Refer to section 3.2, Data Entry Modes. |

| Softkey | Description |
|---|---|
|   | The Return Softkey is used to go back to the previous Screen.<br>The Return Softkey is gray (Inactive) when the Home Screen is displayed. |

### 3.1.3 STATUS/TASK BAR

The blue bar located at the bottom of the Screen contains function buttons and displays indicators which provide a visual feedback about the system's state and hardware connections.

| Screen Icon/Function | Description |
|---|---|
|  | External equipment is connected to the LAN Connector (Front or Rear Panel). |
|  | External equipment is not connected to the LAN Connector (Front or Rear Panel). |
|  | External equipment is connected to the USB Connector. |
|  | External equipment is not connected to the USB Connector. |
|  | External equipment is connected to the GPIB Connector. |
|  | External equipment is not connected to the GPIB Connector. |
|  | The configuration does not match with the sub-assemblies present in the system or a DSP or FPGA firmware version is incorrect. |
|  | An error has occurred. Place the mouse cursor over the icon to see a description of the error or double click on the icon to go to the Error Menu to see a list of errors. |
|  | Press this icon to open a dialog window which allows users to safely remove hardware. |
|  | Opens the on-screen keyboard for data entry. |
|  | Press this icon to open Windows Explorer. |

## 3.2 DATA ENTRY MODES

### 3.2.1 DEVICE MODE DATA ENTRY

When Device Mode is selected as the primary means of editing and navigating the Test Set's Screens, arrows are displayed next to each setting field on the Screens. These arrows can be used for defining the settings using an external mouse, or keyboard can be used to enter specific values in a selected field.

**NOTE: SELECTING DEVICE MODE DOES NOT DISABLE THE TOUCH SCREEN: TOUCH SCREEN MODE IS STILL AVAILABLE WHEN DEVICE MODE IS SELECTED.**

Figure 1.2.3 - 3 shows an example of a screen with Device Mode selected. Figure 1.2.3 - 4 shows an example of the same screen as it appears when TouchScreen Mode is selected.

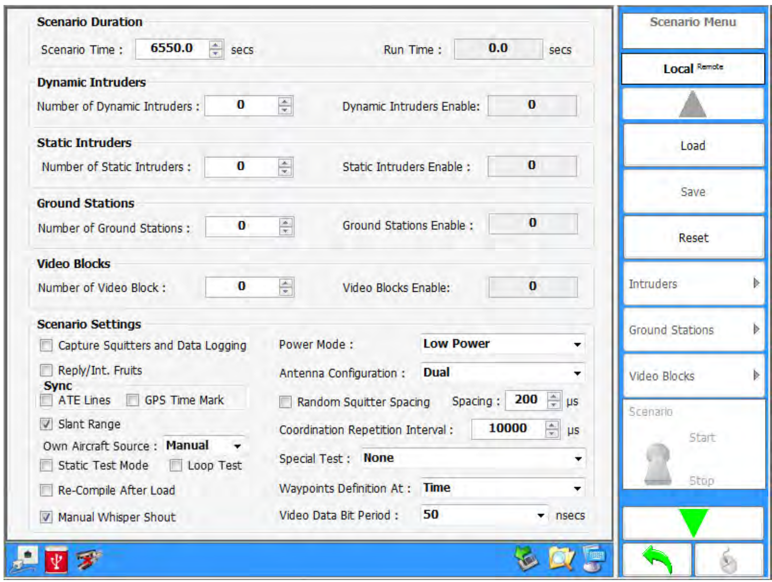



**Figure 1.2.3 - 3 Data Entry - Device Mode Selected**

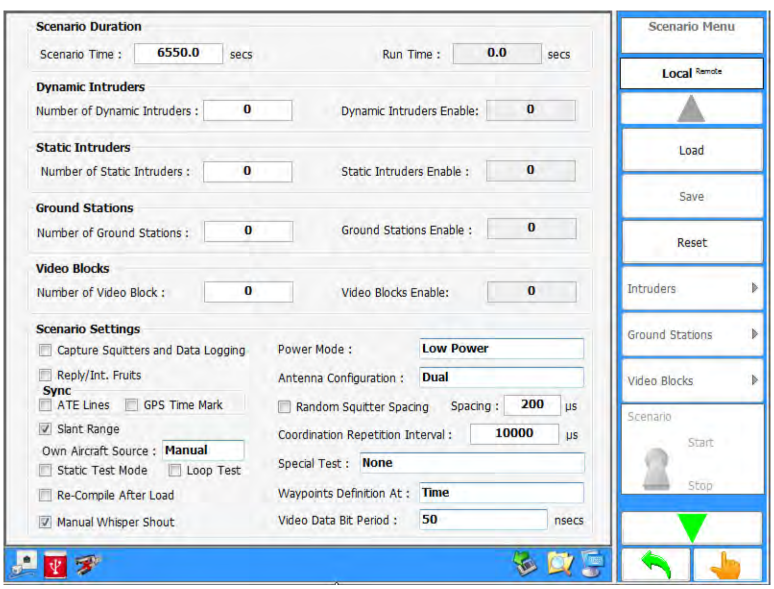



**Figure 1.2.3 - 4 Data Entry - Touch Screen Mode Selected**

### 3.2.2 TOUCH SCREEN DATA ENTRY TOOLS

When Touch Screen Mode is selected, pressing a setting field displays virtual on-screen controls which are used to define parameters.

Figure 1.2.3 - 5 shows the Touch Screen Numeric Keypad; Figure 1.2.3 - 6 and Figure 1.2.3 - 7 show additional Touch Screen Data Entry Tools which are used to configure screen settings.

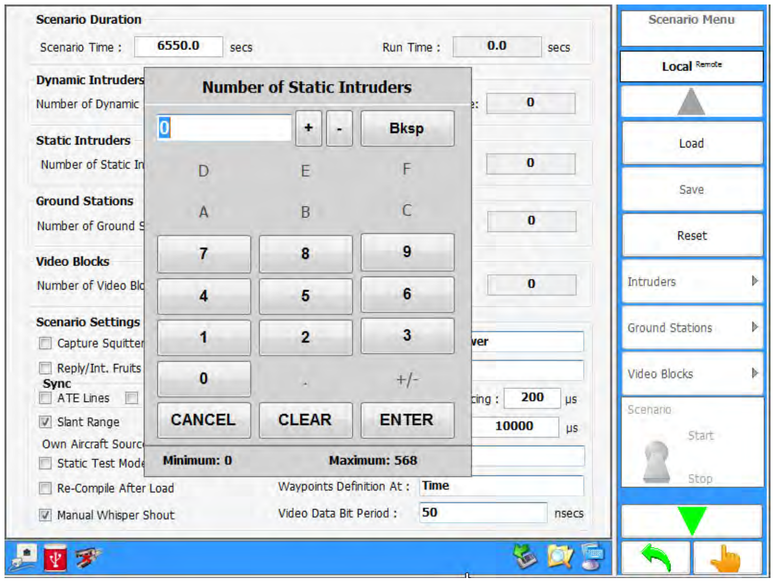



Figure 1.2.3 - 5 Touch Screen Numeric Keypad


Figure 1.2.3 - 6 Touch Screen Listbox Control


Figure 1.2.3 - 7 Touch Screen Keyboard Control

## 3.3 MAIN "HOME" SCREEN

Figure 1.2.3 - 8 shows an example of the RGS-2000NG Main Screen and Softkey Menu sequence. This screen is the Test Set's "Home" screen from which a user accesses all Test Set functions.

The Main Display Area of the Home Screen displays the Test Set part number and software versions.

The Softkey Menu accesses available Test and System Functions.

**NOTE: PRESS ALT + R TO REFRESH THE FIRMWARE VERSIONS.**

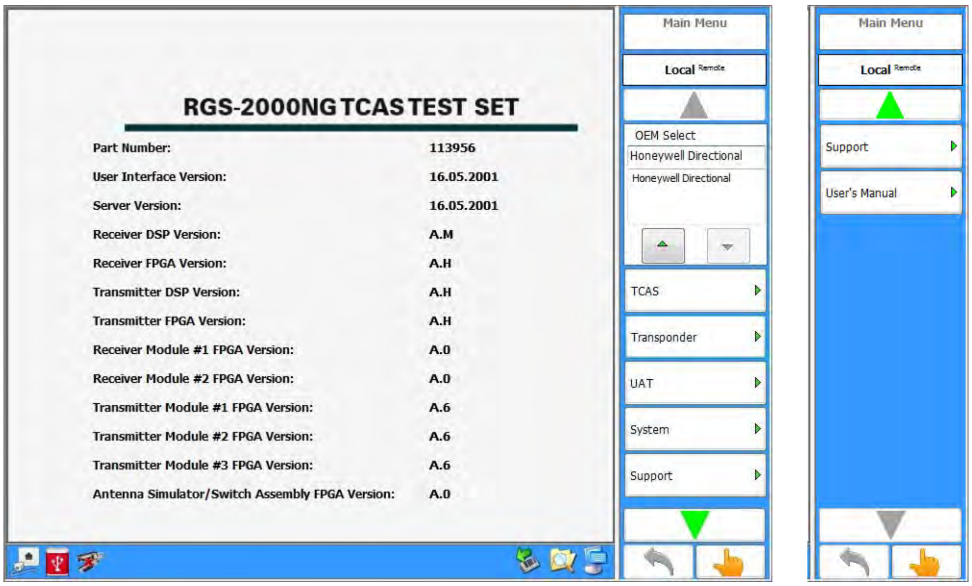



**Figure 1.2.3 - 8 RGS-2000NG "Home" Screen**

| Screen Components | Description |
|---|---|
| **OEM Select Menu** | Selects the OEM phase tables to be used during the test. This is an option enabled parameter. |
| **TCAS Softkey** | Accesses TCAS Test Mode. Refer to 3.4, TCAS Test Mode. |
| **Transponder Softkey** | Accesses Transponder Test Mode. Refer to Section 3.5, Transponder Test Mode. |
| **UAT Softkey** | Accesses UAT Test Mode (Option). Refer to Section 3.6, UAT Test Mode. |
| **System Softkey** | Accesses the System Screen. Refer to Section 3.7, System Screen. |
| **Support Softkey** | Accesses the Support Menu. Refer to Section 3.7.8, Support Screen. |
| **User's Manual** | Displays a PDF copy of the RGS-2000NG Operation Manual. |

## 3.4 TCAS TEST MODE

The TCAS Test Mode Main Screen allows the user to select from various TCAS system test functions. The TCAS Home Screen displays all currently installed compatibility options.

**SCREEN SEQUENCE:**

Home Screen > TCAS Softkey

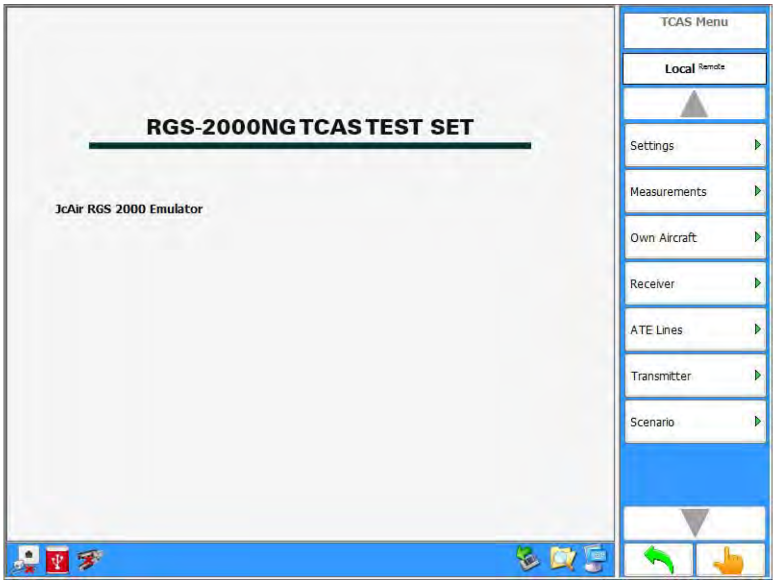



**Figure 1.2.3 - 9 TCAS Screen**

| Screen Components | Description |
|---|---|
| **Settings Softkey** | Accesses the TCAS Settings Screen. Refer to 3.4.1, TCAS Settings Screen. |
| **Measurements Softkey** | Accesses the TCAS Measurements Screen. Refer to 3.4.3, TCAS Measurements Screen. |
| **Own Aircraft Softkey** | Accesses the TCAS Own Aircraft Screen. Refer to 3.4.6, TCAS Own Aircraft Screen. |
| **Receiver Softkey** | Accesses the TCAS Receiver Screen. Refer to 3.4.8, TCAS Receiver Screen. |
| **ATE Lines Menu Softkey** | Accesses the TCAS ATE Lines Screen. Refer to 3.4.14, TCAS ATE Line Screen. |
| **Transmitter Softkey** | Accesses the TCAS Transmitter Screen. Refer to 3.4.17, TCAS Transmitter Screen. |
| **Scenario Softkey** | Accesses the TCAS Scenario Screen. Refer to 3.4.20, TCAS Scenario Screen. |

### 3.4.1 TCAS SETTINGS SCREEN

The TCAS Settings Screen allows the user to configure the Transmitter, Receiver and Antenna Simulator modules within the Test Set. The TCAS Settings Screen is mainly used for testing and troubleshooting of the Test Set. For TCAS Unit testing, the TCAS Settings Screen should only be used to set the individual RF Generator frequencies. Other entires may not persist after exiting the Settings Menu.

**NOTE: SELECTION OF OEM CHANGES THE ANTENNA SIMULATION MODULE, THE ANTENNA RESISTORS, AND LOADS THE CALIBRATION TABLES FOR BEARING FOR THE SELECTED OEM.**

**SCREEN SEQUENCE:**

TCAS Screen > Settings Softkey


**Figure 1.2.3 - 10 TCAS Settings Screen/Softkey Menu**

| Screen Components | Description |
|---|---|
| **Power Mode Menu** | Selects the Power Mode. |
| **ON/OFF Toggle Switch** | Enables/disables the Transmitter. |
| **Frequency Field** | Selects the Transmitter frequency. |
| **Power Field** | Sets the Transmitter power. |
| **Path Menu** | Selects the Transmitter Path (Antenna Port). |
| **Phase Field** | Selects the Phase (Bearing). |
| **Modulation Toggle Switch** | Selects the Modulation. |
| **Rise/Fall Menu** | Selects the Rise/Fall. Generator A, C and E only. |
| **Factory Setup Softkey** | Pressing this button sets all hardware to the hardware configuration's default settings. |
| **Signal Generator Softkey** | Displays the TCAS Settings Signal Generator Softkey Menu (Section 3.4.2). |

| Screen Components | Description |
|---|---|
| **Receiver Path MenuTick Box** | Allows the user to select which port to connect the Top/Bottom Receiver. The Receiver Path is automatically switched to Combiner for Collins Magnitude. |
| **Suppression Out Toggle Switch** | Enables/disables the Suppression Output. |
| **Pulse Width** | Selects the Pulse Width. |

### 3.4.2 TCAS SETTINGS SIGNAL GENERATOR SOFTKEY MENU

Figure 1.2.3 - 11 shows the TCAS Signal Generator Softkey Menu sequence. Each Generator "X" Softkey accesses a Softkey Menu that contains Settings Softkeys that correspond with the settings on the Main Display Area of the TCAS Settings Screen. Refer to Section 3.4.1, TCAS Settings Screen for descriptions of these settings.

**SCREEN SEQUENCE:**

TCAS Settings Screen > Signal Generator Softkey > Generator "X" Softkey

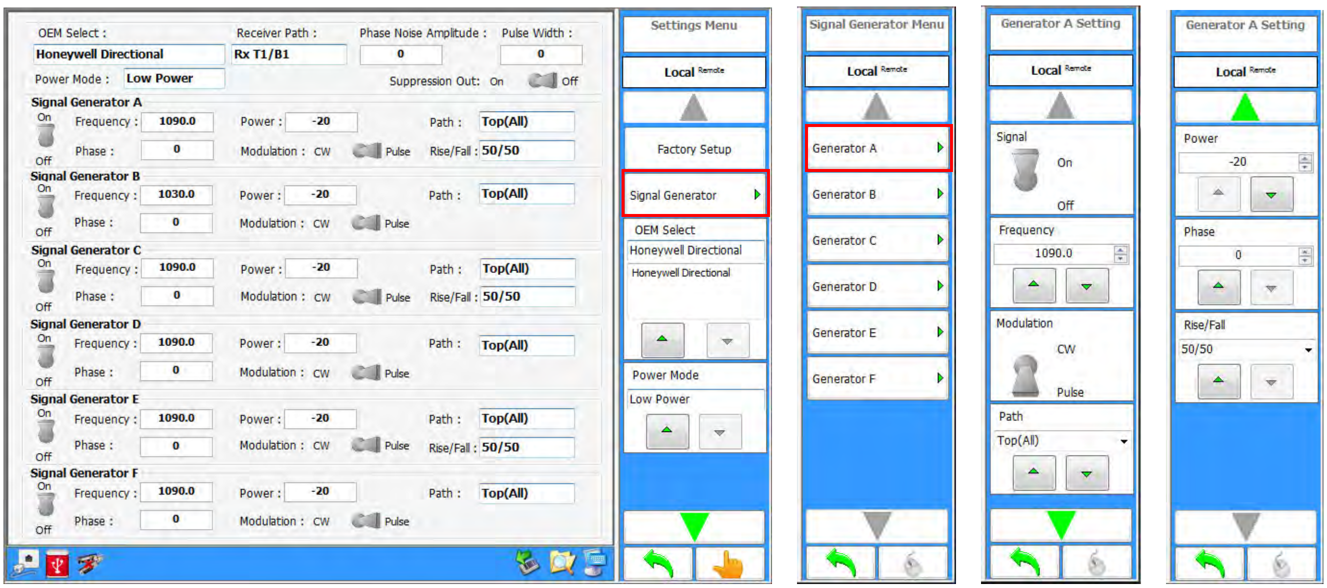



**Figure 1.2.3 - 11 TCAS Signal Generator Softkey Menus**

### 3.4.3 TCAS MEASUREMENTS SCREEN

The TCAS Measurements Screen allows the user to view the he transmissions of the UUT and to perform a variety of pulse characteristic, frequency and phase measurements.

**NOTE: DRAGGING THE MOUSE OR FINGER ON THE TOUCH SCREEN OVER THE AXIS AND GRAPH CAN CHANGE THE HORIZONTAL/VERTICAL SCALES AND HORIZONTAL/VERTICAL POSITIONS.**

### 3.4.4 MEASUREMENTS - SCOPE MODE

TCAS Scope parameters are displayed by setting the Mode Toggle Switch to Scope Mode. TCAS Scope parameters can be defined on the Measurements Screen or on the Softkey Menu.

**SCREEN SEQUENCE:**

TCAS Screen > Measurements Softkey > Setting: Scope Mode

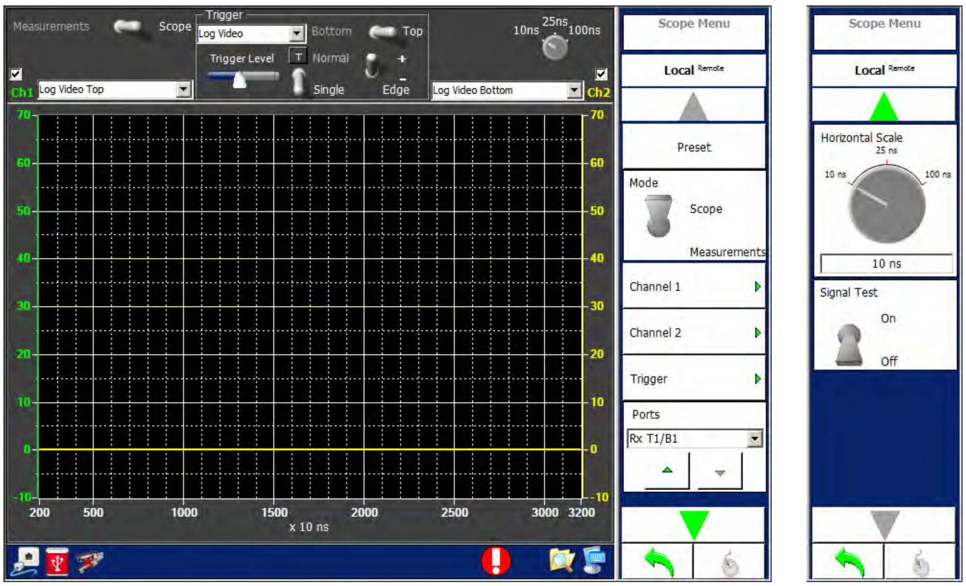



**Figure 1.2.3 - 12 TCAS Measurement Screen - Scope Mode**

| Screen Components | Description |
|---|---|
| **Mode Toggle Switch** | The Mode Toggle Switch switches the Measurement Screen mode. |
| **Ch1/Ch2 Settings** | Refer to Section 3.4.4.1, Measurements - Scope Mode Channel Softkey Menu for a description of these settings/controls. |
| **Trigger Settings** | Refer to Section 3.4.4.2, Measurements - Scope Mode Trigger Softkey Menu for a description of these settings/controls. |
| **Horizontal Scale Knob** | Selects the Horizontal Scale. |
| **Preset Softkey** | Pressing this softkey sets all fields to preset levels and selections. |
| **Trigger Softkey** | Accesses Trigger Softkey menu. Refer to Section 3.4.4.2, Measurements - Scope Mode Trigger Softkey Menu. |
| **Channel 1/2 Softkeys** | Accesses Channel 1 or Channel 2 Softkey menu. Refer to Section 3.4.4.1, Measurements - Scope Mode Channel Softkey Menu |
| **Ports** | Selects the incoming signal Port. |
| **Signal Test** | Enables/disables the Signal Test. |

### 3.4.4.1 Measurements - Scope Mode Channel Softkey Menu

The TCAS Scope Channel 1 and 2 Softkey Menu is accessed by pressing the Channel 1 or Channel 2 Softkey. Channel settings can be configured using the Channel Softkey menus or the fields on the Main Display Area.

**SCREEN SEQUENCE:**

TCAS Screen > Measurements Softkey > Setting: Scope Mode > Channel 1 or Channel 2 Softkey

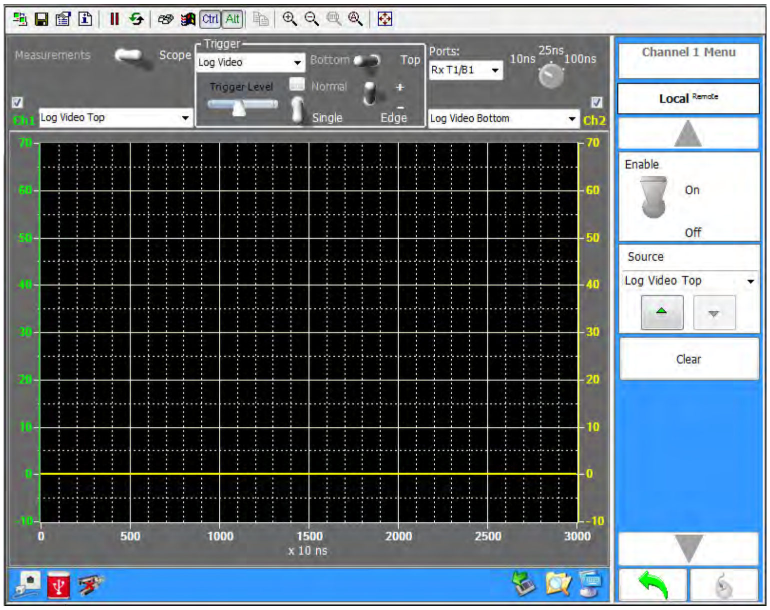



**Figure 1.2.3 - 13 TCAS Scope Mode Channel # Softkeys**

| Screen Components | Description |
|---|---|
| **Channel Source Menu** | Selects the Channel 1 or Channel 2 signal source. |
| **Channel Enable** | The Channel Toggle Switch enables/disables the channel on the plot field.<br>A channel can also be enabled/disabled using the tick box located beside each channel label on the Main Display Area. |
| **Clear Softkey** | Clears the channel trace on the plot field. |

### 3.4.4.2 Measurements - Scope Mode Trigger Softkey Menu

The TCAS Scope Trigger Softkey Menu is accessed by pressing the Trigger Softkey. Trigger settings can be configured using the Trigger Softkey menu or the fields on the Main Display Area.

**SCREEN SEQUENCE:**

TCAS Screen > Measurements Softkey > Setting: Scope Mode > Trigger Softkey


**Figure 1.2.3 - 14 TCAS Scope Mode Trigger Softkeys**

| Screen Components | Description |
|---|---|
| **Source Menu** | Selects the Trigger Source. |
| **Antenna Toggle Switch** | Selects the Trigger Antenna. |
| **Mode Toggle Switch** | Selects the Trigger Mode. |
| **Trigger Softkey** | Pressing this softkey clears a triggered event when Trigger Mode is set to Single. |
| **Level Field** | Defines the Trigger Level. The Trigger Level can also be defined on the Main Display Area using the Trigger Level Slider. |
| **Edge Toggle Switch** | Selects the Trigger Edge. |

### 3.4.5 MEASUREMENTS - MEASUREMENT MODE

TCAS Measurement parameters are displayed by setting the Mode Toggle Switch to Measurement Mode. TCAS Measurement parameters can be defined on the Measurements Screen or on the Softkey Menu.

**SCREEN SEQUENCE:**

TCAS Screen > Measurements Softkey > Setting: Measurements Mode


**Figure 1.2.3 - 15 TCAS Measurement Screen - Measurements Mode**

| Screen Components | Description |
|---|---|
| **Mode Toggle Switch** | The Mode Toggle Switch allows the user to switch the Measurement Screen mode.<br>Measurement Mode allows the user to perform a measurement.<br>Scope Mode allows the user to view a received waveform. |
| **Measurement Settings** | Refer to Section 3.4.5.1, Measurements - Measurement Mode Channel Softkey Controls for a description of these settings/controls. |
| **Trigger Settings** | Refer to Section 3.4.5.2, Measurements - Measurement Mode Trigger Softkey Controls for a description of these settings/controls. |
| **Preset Softkey** | Pressing this softkey sets all fields to preset levels and selections. |
| **Channel 1/2 Softkeys** | Accesses Channel 1 or Channel 2 controls. Refer to Section 3.4.5.1, Measurements - Measurement Mode Channel Softkey Controls. |
| **Ports** | Selects the incoming signal Port. |

### 3.4.5.1 Measurements - Measurement Mode Channel Softkey Controls

The TCAS Measurement Channel 1 and 2 Softkey Menu is accessed by pressing the Channel 1 or Channel 2 Softkey. Measurement Channel settings can be configured using the Channel Softkey menu or the fields on the Main Display Area.

**SCREEN SEQUENCE:**

TCAS Screen > Measurements Softkey > Setting: Measurements Mode > Channel 1 or 2 Softkey

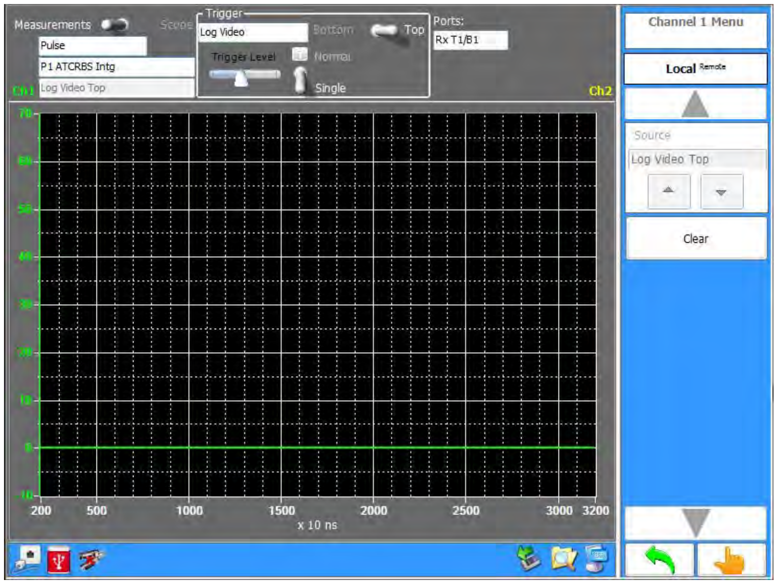



**Figure 1.2.3 - 16 TCAS Measurement Mode Channel Softkey Menu**

| Screen Components | Description |
|---|---|
| **Measurement Type Menu** | Selects the type of measurement to be performed. |
| **Pulse Characteristic Menu** | Selects the pulse characteristic to be used during test. |
| **Channel Source Menu** | This menu is enabled when Scope Mode is selected. |
| **Clear Softkey** | Clears the channel trace on the plot field. |

### 3.4.5.2 Measurements - Measurement Mode Trigger Softkey Controls

The TCAS Measurement Trigger Softkey Menu is accessed by pressing the Trigger Softkey. Measurement Trigger settings can be configured using the Trigger Softkey menu or the fields on the Main Display Area.

**SCREEN SEQUENCE:**

TCAS Screen > Measurements Softkey > Setting: Measurements Mode > Trigger Softkey

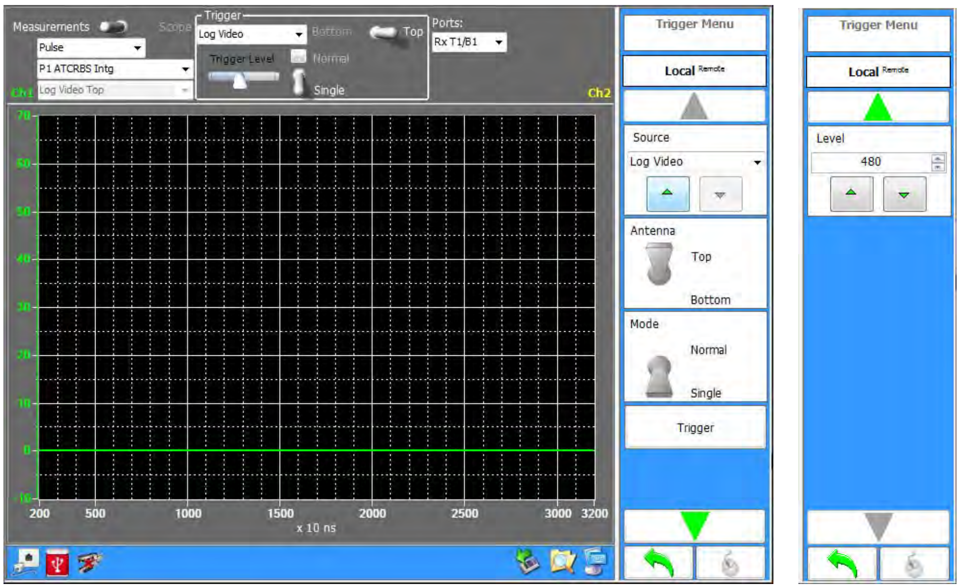



**Figure 1.2.3 - 17 TCAS Measurement Mode Trigger Softkey Menu**

| Screen Components | Description |
|---|---|
| **Source Menu** | Selects the Trigger Source. |
| **Antenna Toggle Switch** | Selects the Trigger Antenna. |
| **Mode Toggle Switch** | Selects the Trigger Mode. |
| **Trigger Softkey** | Pressing this softkey clears a triggered event when Trigger Mode is set to Single. |
| **Level Field** | Defines the Trigger Level. |

### 3.4.6 TCAS OWN AIRCRAFT SCREEN

The Own Aircraft Screen displays the aircraft's position. The user can change the latitude, longitude, altitude, heading and Mode S address of the Own Aircraft (TCAS under test) when Own Aircraft Source is set to Manual.

If not set to Manual Entry, the user Own Aircraft information from the selected source is displayed in the TCAS Menu.

**NOTE:** **THE OWN AIRCRAFT SOURCE IS SELECTED ON THE TCAS SCENARIO SCREEN. REFER TO SECTION 3.4.20, TCAS Scenario Screen.**

**NOTE:** **WHEN AN EXTERNAL SOURCE (ETHERNET OR 429) IS SELECTED FOR THE OWN AIRCRAFT SOURCE THE OWN AIRCRAFT INFORMATION IS UPDATED EVERY 5 SECONDS WHEN A SCENARIO IS NOT RUNNING OR EVERY SECOND IF THE SCENARIO IS RUNNING.**

**SCREEN SEQUENCE:**

TCAS Screen > Own Aircraft Softkey

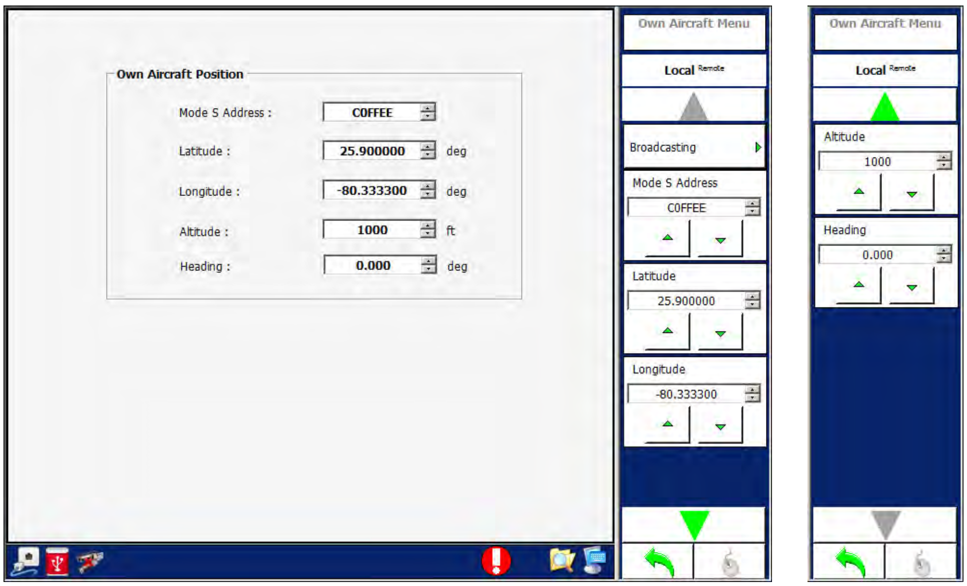



**Figure 1.2.3 - 18 TCAS Own Aircraft Screen**

| Screen Components | Description |
|---|---|
| **Mode S Address Field** | Sets the Mode S Address (Hexadecimal). |
| **Latitude Field** | Sets the Latitude of the Own Aircraft. |
| **Longitude Field** | Sets the Longitude of the Own Aircraft. |
| **Altitude Field** | Sets the Altitude of the Own Aircraft. |
| **Heading Field** | Sets the Heading of the Own Aircraft |
| **Broadcasting Softkey** | Accesses the Broadcasting Screen. Refer to Section 3.4.7, Own Aircraft Broadcasting Screen. |

### 3.4.7 OWN AIRCRAFT BROADCASTING SCREEN

The Own Aircraft Broadcasting Screen allows the user to set up the UDP information for broadcasting Own Aircraft information via UDP.

**SCREEN SEQUENCE:**

TCAS Own Aircraft Screen > Broadcasting Softkey

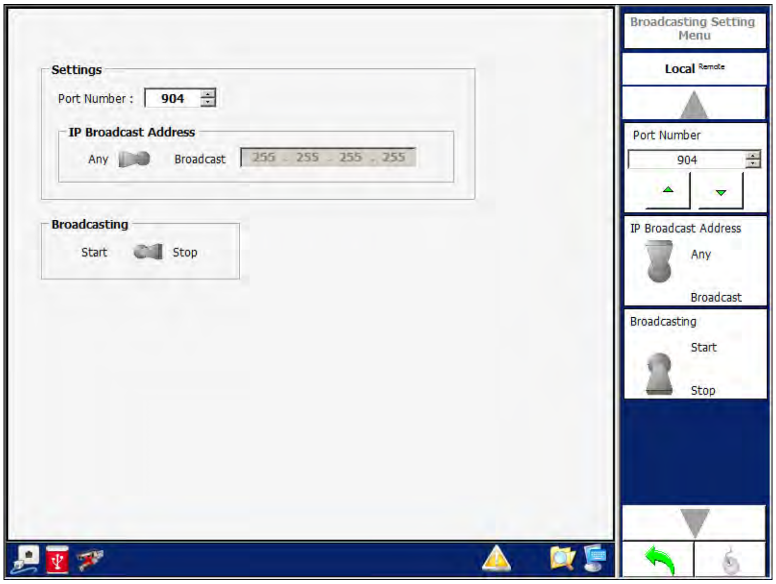



**Figure 1.2.3 - 19 TCAS Own Aircraft Broadcasting Screen**

| Screen Components | Description |
|---|---|
| **Port Number Field** | Sets the UDP Port Number. |
| **IP Broadcast Address Toggle Switch** | Sets the IP Broadcast Address. When Broadcast is selected, the IP Address is defined by the user. |
| **Broadcasting Toggle Switch** | Starts/stops Broadcasting. |

### 3.4.8 TCAS RECEIVER SCREEN

The TCAS Receiver Screen allows the user to view, capture and log the transmissions from the TCAS system (UUT) and the Test Set. The TCAS Receiver Screen displays the last 8 receptions: Blue LEDs/lines are receptions from the TCAS system (UUT); green LEDs/lines are receptions from the Test Set.

**SCREEN SEQUENCE:**

TCAS Screen > Receiver Softkey

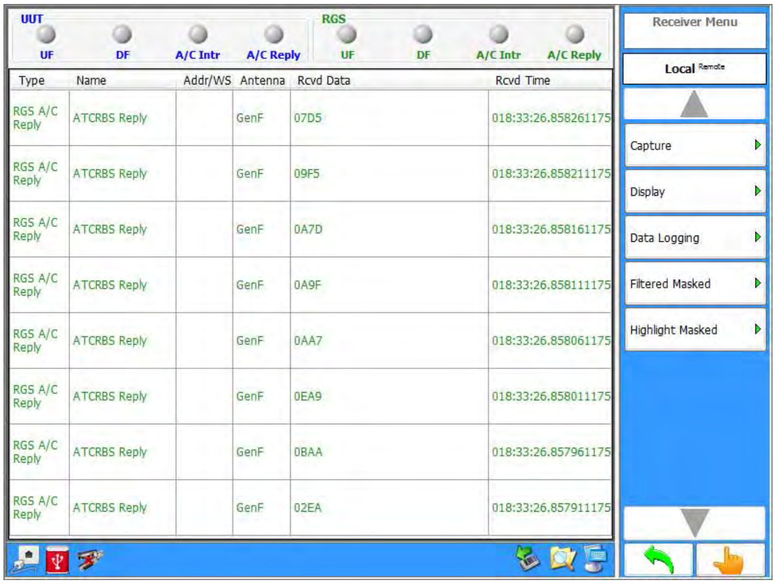



**Figure 1.2.3 - 20 TCAS Receiver Screen**

<table>
<tr><th>Screen Components</th><th colspan="3">Description</th></tr>
<tr><td rowspan="5">LEDs</td><td colspan="3">Displays the status of reception from the TCAS system (UUT) (Rx Group) or the Test Set (Tx Group).</td></tr>
<tr><td rowspan="4">LED</td><td>UF</td><td>UF Interrogation</td></tr>
<tr><td>DF</td><td>DF Reply</td></tr>
<tr><td>A/C Intr</td><td>ATCRBS Interrogation</td></tr>
<tr><td>A/C Replay</td><td>ATCRBS Reply</td></tr>
<tr><td>Capture Softkey</td><td colspan="3">Accesses the Receiver Capture Screen. Refer to Section 3.4.9, TCAS Capture Softkey Menu.</td></tr>
<tr><td>Display Softkey</td><td colspan="3">Accesses the Receiver Display Softkey Menu. Refer to Section 3.4.10, TCAS Receiver Display Softkey Menu.</td></tr>
<tr><td>Data Logging Softkey</td><td colspan="3">Accesses the Receiver Data Logging Softkey Menu. Refer to Section 3.4.11, TCAS Receiver Data Logging Softkey Menu.</td></tr>
<tr><td>Filtered Masked Softkey</td><td colspan="3">Accesses the Receiver Filtered Masked Screen. Refer to Section 3.4.12, TCAS Filtered Masked Softkey Menu.</td></tr>
<tr><td>Highlight Masked Softkey</td><td colspan="3">Accesses the Receiver Highlight Masked Screen. Refer to Section 3.4.12, TCAS Filtered Masked Softkey Menu.</td></tr>
</table>

### 3.4.9 TCAS CAPTURE SOFTKEY MENU

Figure 1.2.3 - 21 shows the TCAS Receiver Screen with the Capture Softkey Menu sequence. The TCAS Receiver Capture Softkey Menu contains toggle switches which allows the enable/disable the capture of different types of messages transmitted by the UUT and Test Set.

**SCREEN SEQUENCE:**

TCAS Receiver Screen > Capture Softkey

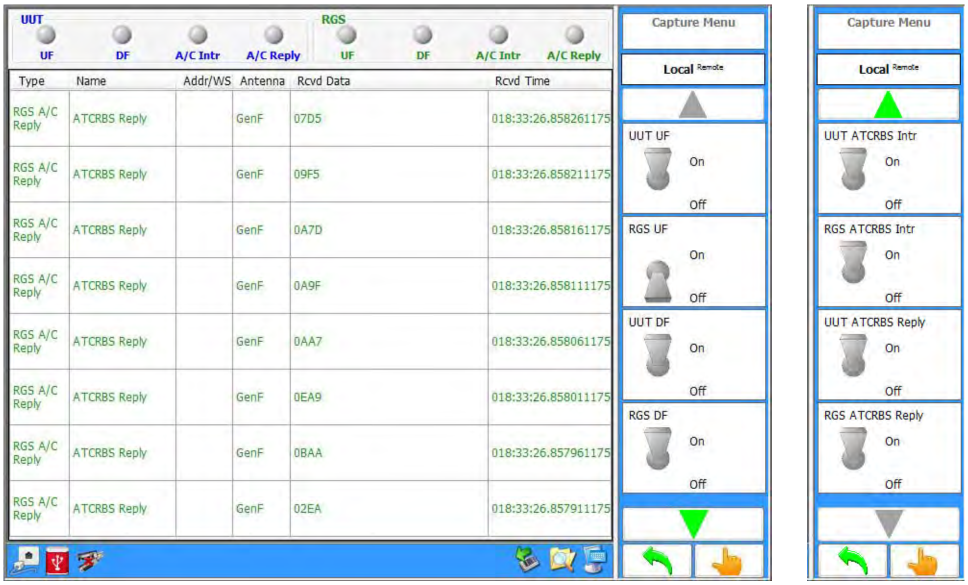



**Figure 1.2.3 - 21 TCAS Receiver Capture Menu**

### 3.4.10 TCAS RECEIVER DISPLAY SOFTKEY MENU

Figure 1.2.3 - 21 shows the TCAS Receiver, Display Softkey Screen and menu sequence.

**SCREEN SEQUENCE:**

TCAS Receiver Screen > Display Softkey

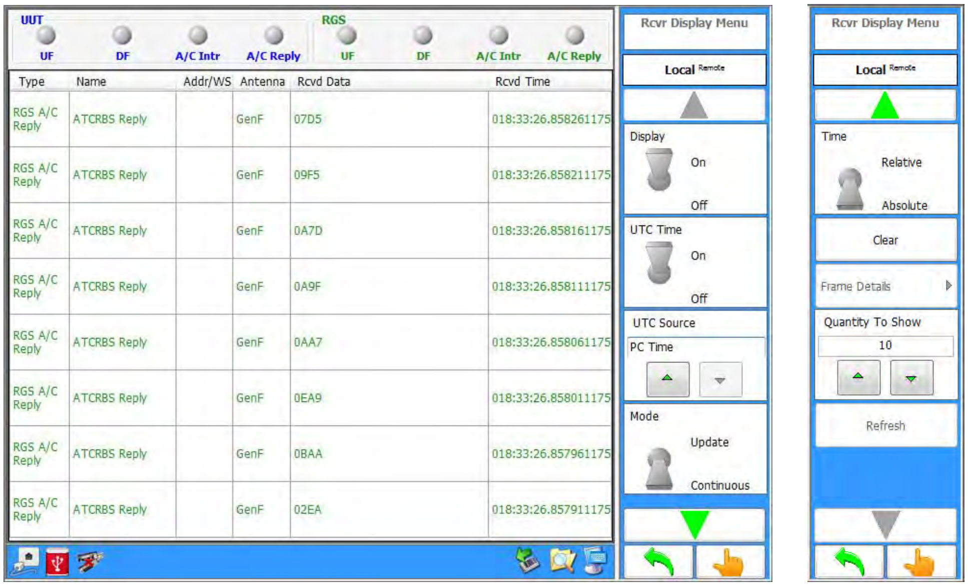



**Figure 1.2.3 - 22 TCAS Receiver Display - UTC Time OFF**

| Screen Components | Description |
|---|---|
| **Display Toggle Switch** | Allows the user to turn ON/OFF displaying new receptions. |
| **UTC Time Toggle Switch** | Enables/disables the UTC time stamp. |
| **UTC Source Menu** | This setting is available when UTC Time Stamp is ON.<br>Selects the PC Time. |
| **Mode Toggle Switch** | |
| Update | When selected, displays data received by updating a message style with the latest reception. |
| Continuous | When selected, displays all data received in a continuous order by time. |
| **Time Toggle Switch** | |
| Relative | When selected, displays time relative to previous message. |
| Absolute | When selected, displays the time received. |
| **Clear Softkey** | Pressing this softkey clears all messages currently displayed on the Receiver Screen. |
| **Frame Details Softkey** | Accesses the Frame Details Screen. This softkey is enabled when data is captured. |
| **Quantity to Show Field** | Defines how many messages to show on the screen (1000 maximum). |
| **Refresh Softkey** | Pressing this softkey refreshes data on the Receiver Screen. This softkey is enabled when data is captured. |

### 3.4.11 TCAS RECEIVER DATA LOGGING SOFTKEY MENU

TCAS Receiver Data Logging is enabled on the Data Logging Softkey Menu. By default, data is logged enabled when the system detects valid data.

**SCREEN SEQUENCE:**

TCAS Receiver Screen > Data Logging Softkey

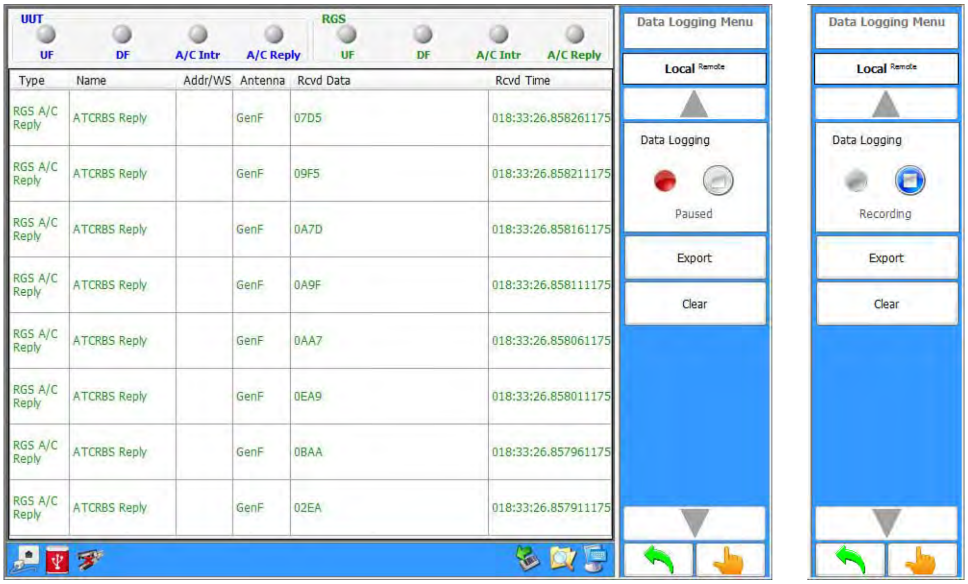



**Figure 1.2.3 - 23 TCAS Receiver Data Logging Softkey Menu**

| Screen Components | Description |
|---|---|
| **Data Logging** | |
| Recording/Paused | Allows the user to record or pause data logging receive messages |
| Export | Allows the user to export the received messages to a file. |
| Clear | Allows the user to clear all recorded messages. |
| **Filtered Masked Softkey** | Accesses the Filtered Masked Screen. Refer to Section 3.4.12, TCAS Filtered Masked Softkey Menu. |
| **Highlight Masked Softkey** | Accesses the Highlight Masked Screen. Refer to Section 3.4.13, Highlight Masked Screen |

### 3.4.12 TCAS FILTERED MASKED SOFTKEY MENU

Pressing the Filtered Masked Softkey accesses additional controls that allow the user to select the messages to filter and display in the Receiver Screen.

**SCREEN SEQUENCE:**

TCAS Receiver Screen > Filtered Masked Softkey

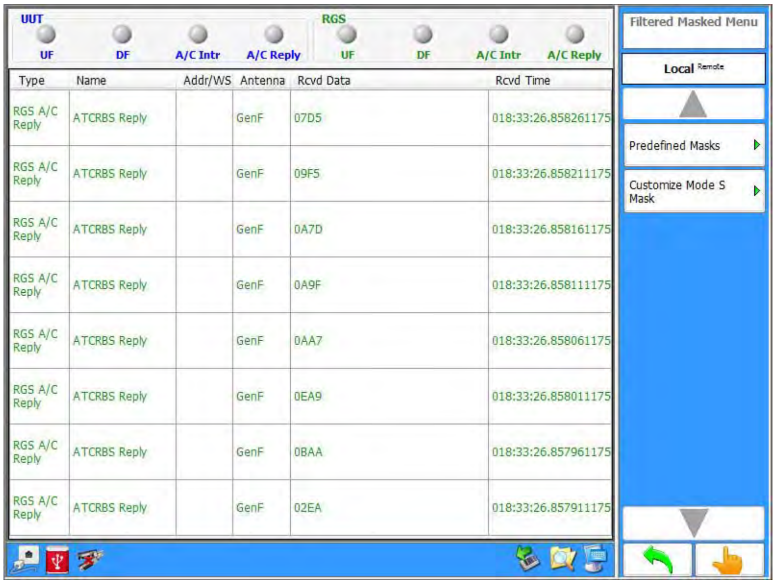



**Figure 1.2.3 - 24 TCAS Receiver Filtered Masked Screen**

| Screen Components | Description |
|---|---|
| **Predefined Masks Softkey** | Accesses the Predefined Masks Screen. Refer to Section 3.4.12.1, Predefined Masks Screen. |
| **Customize Mode S Mask Softkey** | Accesses the Customize Mode S Mask Screen. Refer to Section 3.4.12.2, Customize Mode S Mask Screen. |

### 3.4.12.1 Predefined Masks Screen

The Predefined Masks Screen allows the user to select predefined parameters to use to filter the messages that are displayed on the Receiver Screen.

**SCREEN SEQUENCE:**

TCAS Receiver Screen > Filtered Masked Softkey > Predefined Masks Softkey

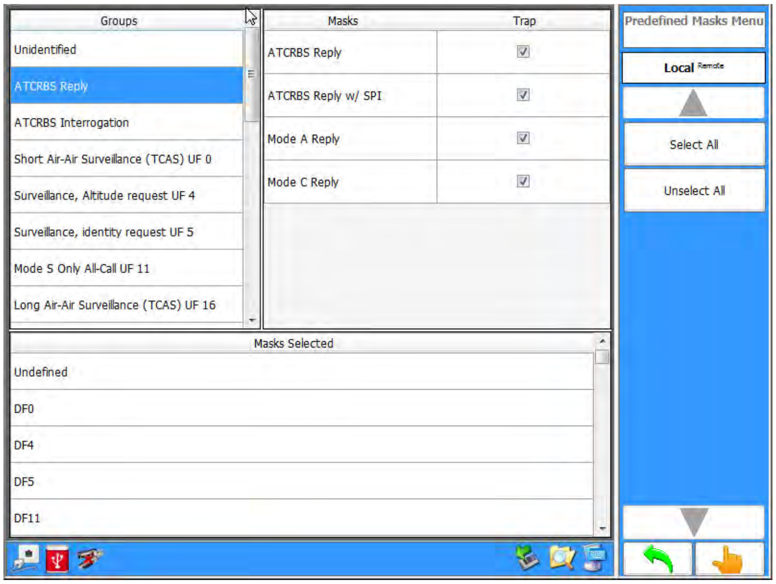



**Figure 1.2.3 - 25 TCAS Receiver Predefined Masks Screen**

| Screen Components | Description |
|---|---|
| **Groups List** | Allows the user to select groups of UF and DF messages. |
| **Masks List** | Displays the sub-messages of the selected group. |
| **Trap Tick Box** | Enables/disables the sub-messages. |
| **Masks Selected List** | Displays the messages selected to perform the filter. |
| **Select All Softkey** | Allows the user to select all messages to be displayed. No filter is applied. |
| **Unselect All Softkey** | Allows the user to de-select all messages. No messages are displayed. |

### 3.4.12.2 Customize Mode S Mask Screen

The Customize Mode S Mask Screen allows the user to configure custom settings to filter the messages that are displayed on the Receiver Screen.

**SCREEN SEQUENCE:**

TCAS Receiver Screen > Filtered Masked Softkey > Customize Mode S Mask Softkey

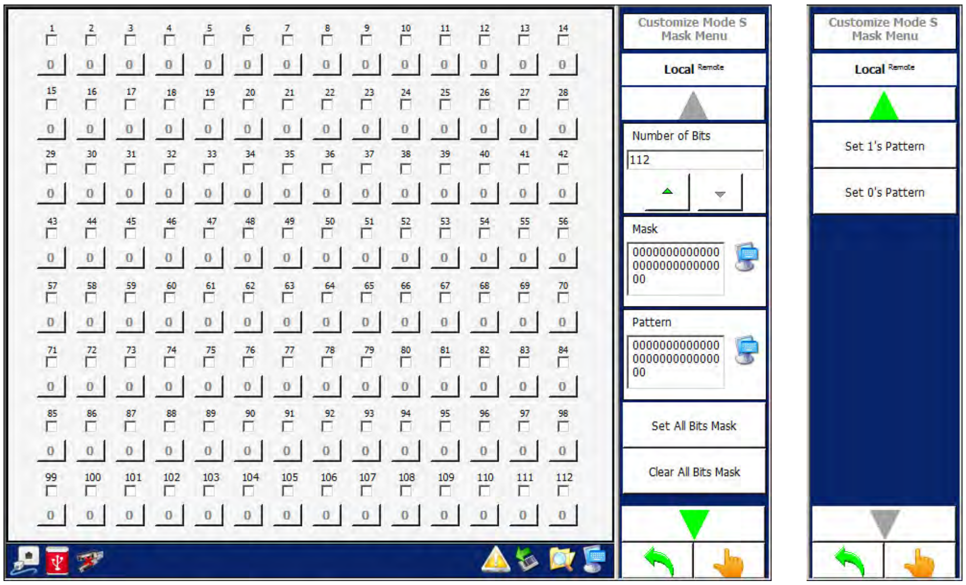



**Figure 1.2.3 - 26 TCAS Receiver Customize Mode S Mask Screen**

| Screen Components | Description |
|---|---|
| **Number Tick Box** | Enables/disables the selected pattern bit. |
| **Bit Button** | Allows the pattern bit. |
| **Number of Bits Field** | Defines the number of bits to be used in the mask. |
| **Mask Field** | Defines the Mask. |
| **Pattern Field** | Defines the Pattern. |
| **Set All Bits Mask Softkey** | Pressing this softkey selects all bits. |
| **Clear All Bits Mask Softkey** | Pressing this softkey clears all bits. |
| **Set 1's Pattern Softkey** | Pressing this softkey selects “1” for all patterns. |
| **Set 0's Pattern Softkey** | Pressing this softkey selects “0” for all patterns. |

### 3.4.13 HIGHLIGHT MASKED SCREEN

The Highlight Masked Screen allows the user to select the messages to highlight as messages are displayed on the Receiver Screen.

**SCREEN SEQUENCE:**

TCAS Receiver Screen > Highlight Masked Softkey

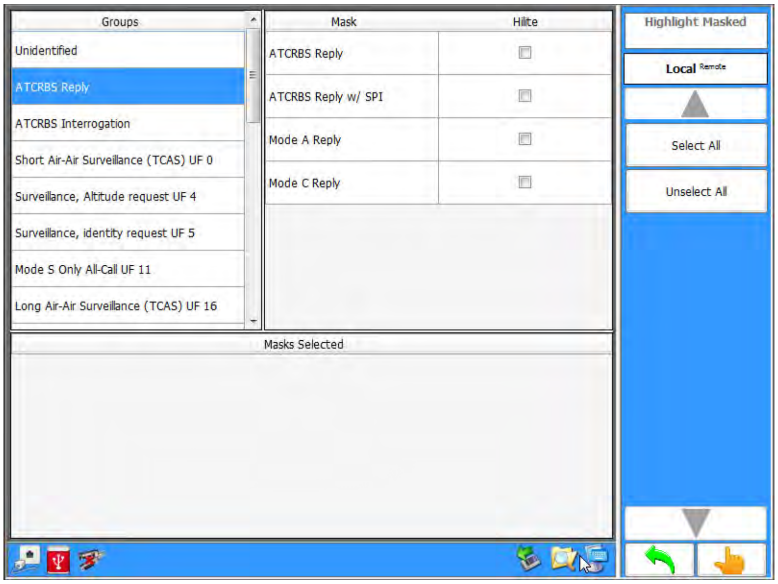



**Figure 1.2.3 - 27 TCAS Receiver Highlight Masked Screen**

| Screen Components | Description |
|---|---|
| **Groups List** | Allows the user to select groups of UF and DF messages. |
| **Mask List** | Displays the sub-messages of the selected group. |
| **Hilite Tick Box** | Enables/disables the sub-messages. |
| **Masks Selected Softkey** | Displays the messages selected to perform the highlight. |
| **Select All Softkey** | Allows the user to select all messages to be displayed. No filter is applied. |
| **Unselect All Softkey** | Allows the user to unselect all messages. No messages are displayed. |

### 3.4.14 TCAS ATE LINE SCREEN

The TCAS ATE Line Screen allows the user to view the ATE line transmissions being received via the ATE Lines connector. A data grid of all received ATE Lines is displayed on the TCAS ATE Line Screen.

**SCREEN SEQUENCE:**

TCAS Screen > ATE Lines Softkey

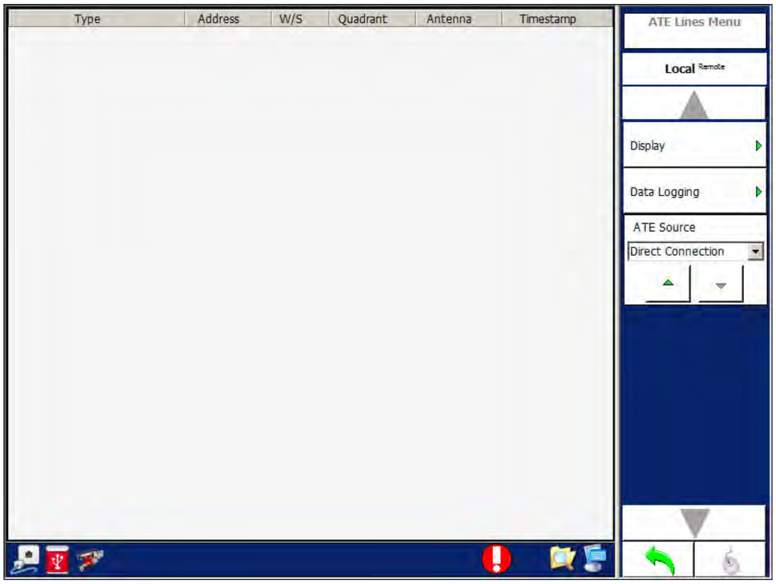



**Figure 1.2.3 - 28 TCAS ATE Line Screen**

| Screen Components | Description |
|---|---|
| **Display Softkey** | Accesses the TCAS ATE Line Display Softkey Menu. Refer to Section 3.4.15, TCAS ATE Line Display Softkey Menu. |
| **Data Logging Softkey** | Accesses the TCAS ATE Line Data Logging Softkey Menu. Refer to Section 3.4.16, TCAS Data Logging Softkey Menu. |
| **ATE Source** | Selects the ATE Source. |

### 3.4.15 TCAS ATE LINE DISPLAY SOFTKEY MENU

The ATE Line Display Softkey Menu allows the user to select the display settings for the ATE Line Test.

**SCREEN SEQUENCE:**

TCAS ATE Lines Screen > Display Softkey

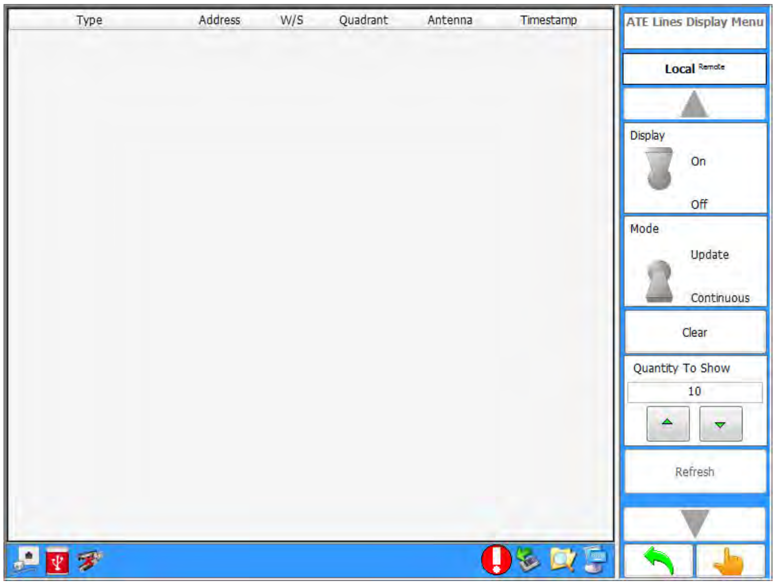



**Figure 1.2.3 - 29 TCAS ATE Line Display Softkey menu**

| Screen Components | Description |
|---|---|
| **Display Toggle Switch** | Allows the user to turn ON/OFF displaying new receptions. |
| **Mode Toggle Switch** | |
| Update | Allows the user to display data received by updating a message style with the latest reception. |
| Continuous | Allows the user to display all data received in a continuous order by time. |
| **Clear Softkey** | Allows the user to clear all recorded messages. |
| **Quantity To Show Menu** | Allows the user to enter how many messages to show. (Maximum 1000 messages). |
| **Refresh Softkey** | Allows the user to refresh the TCAS ATE Lines Screen. |

### 3.4.16 TCAS DATA LOGGING SOFTKEY MENU

TCAS ATE Line data logging is enabled on the TCAS ATE Line Data Logging Softkey Menu. By default, data logging is enabled when the system detects valid data.

**SCREEN SEQUENCE:**

TCAS ATE Lines Screen > Data Logging Softkey

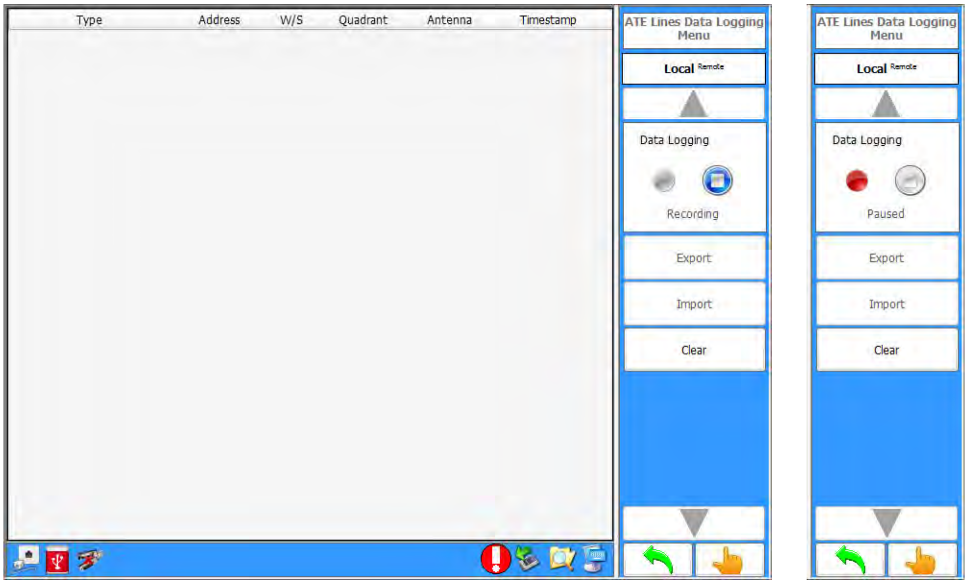



**Figure 1.2.3 - 30 TCAS ATE Line Data Logging Softkey Menu**

| Screen Components | Description |
|---|---|
| **Data Logging Buttons** | |
| Recording/Paused | Allows the user to record or pause data logging receive messages. |
| **Export Softkey** | Exports the received messages to a file. |
| **Import Softkey** | Allows the user to input stored messages. |
| **Clear Softkey** | Pressing this softkey clears all recorded messages. |

### 3.4.17 TCAS TRANSMITTER SCREEN

The TCAS Transmitter Screen allows the user to implement a block of transmissions or RTCA DO-260 tests.

**SCREEN SEQUENCE:**

TCAS Screen > Block Transmission Softkey

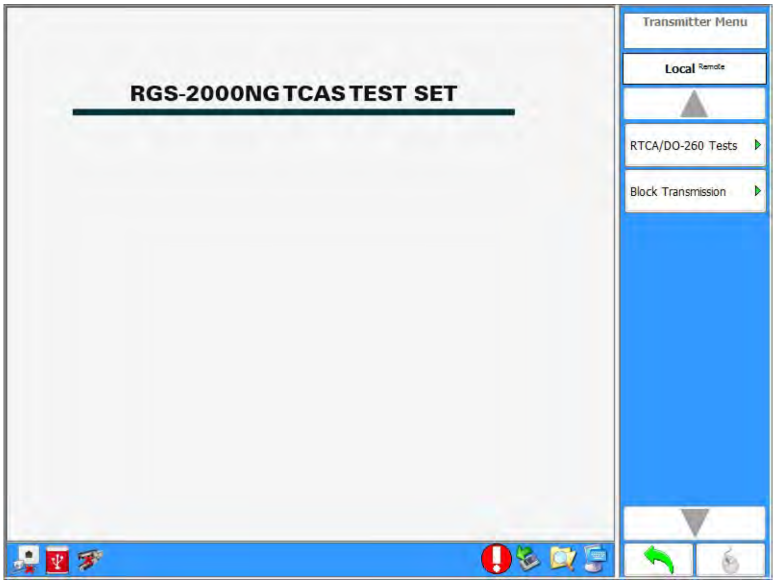



**Figure 1.2.3 - 31 TCAS Transmitter Screen**

| Softkeys | Description |
|---|---|
| **RTCA/DO-260 Tests Softkey** | Accesses the RTCA/DO-260 Tests Screen. |
| **Block Transmission Softkey** | Accesses the Block Transmission Screen. Refer to Section 3.4.19, TCAS Block Transmission Screen. |

### 3.4.18 TCAS TRANSMITTER RTCA/DO-260 TESTS SCREEN

TCAS RTCA/DO-260 is currently in development and planned for a future release.

### 3.4.19 TCAS BLOCK TRANSMISSION SCREEN

The Block Transmission Screen allows the user to set a block of 1090/1030 messages (UF, DF, ATCRBS Interrogation and ATCRBS Replies) to transmit at a specific time and block period.

**SCREEN SEQUENCE:**

TCAS Block Transmission Screen > Block Transmission Softkey

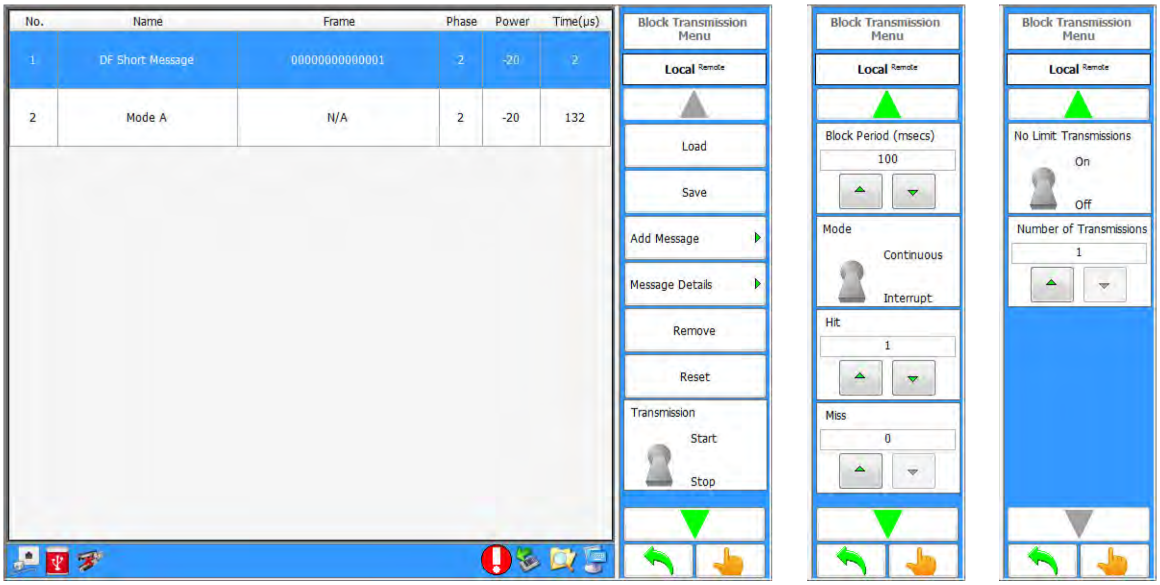



**Figure 1.2.3 - 32 TCAS Block Transmission Screen/Menus**

| Screen Components | Description |
|---|---|
| **Load Softkey** | Loads a Block Transmission sequence from an internal data location or external drive. |
| **Save Softkey** | Saves a Block Transmission sequence to the internal data location or external drive. |
| **Add Message Softkey** | Accesses the Add Message Screen. Refer to Section 3.4.19.1, TCAS Block Transmission Add Message Screen. |
| **Message Details Softkey** | Accesses the Message Details Screen. Refer to Section 3.4.19.3, TCAS Block Transmission Message Details Softkey Menu. |
| **Remove Softkey** | Removes the selected message from the block sequence. |
| **Reset Softkey** | Clears the entire block sequence. |
| **Transmission Toggle Switch** | Allows the user to Start or Stop the block transmissions. |
| **Block Period Field** | Selects the Block Period. |
| **Mode Toggle Switch** | Selects the Mode. |

| Screen Components | Description |
|---|---|
| **Hit Field** | Available when Interrupt Mode is selected.<br>Selects how many groups of block sequences are transmitted before the next miss group. |
| **Miss Field** | Available when Interrupt Mode is selected.<br>Selects how many groups of block sequences are <u>not</u> transmitted before the next miss group. |
| **No Limit Transmission** | Available when Continuous Mode is selected.<br>When No Limit Transmission is ON, the Test Set continues to transmit block sequences until the transmission stop command or switch is turned OFF.<br>When No Limit Transmission is OFF, the Number of Transmissions Softkey is displayed. |
| **Number of Transmissions** | Selects the number of transmissions used when Continuous Mode is selected. |

### 3.4.19.1 TCAS Block Transmission Add Message Screen

The Block Transmission Add Message Screen allows the user to define the parameters for the new message that is added and allows selection of 1030/1090 messages, Mode S/ATCRBS, power, phase and transmission time.

**SCREEN SEQUENCE:**

TCAS Block Transmission Screen > Block Transmission Softkey > Add Message Softkey

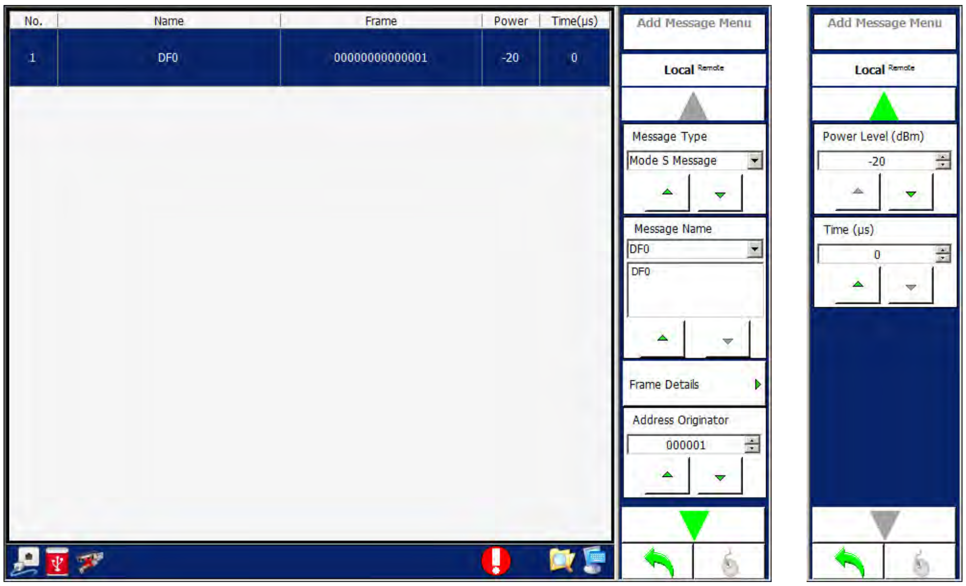



**Figure 1.2.3 - 33 TCAS Block Transmission Add Message Screen/Menus**

| Screen Components | Description |
|---|---|
| **Message Type Menu** | Selects the Message Type. |
| **Message Name Menu** | Selects the Message Name, the subcategory of message within the Message Type selected.<br>**EXAMPLE:** If the Message Type is Mode S Replies, the Message Name is DF0, DF4, DF5, DF16, etc. |
| **Frame Details Softkey** | This softkey is available when the selected block contains frame data. Accesses the Frame Details Screen. Refer to Section 3.4.19.2, TCAS Block Transmission Add Message Frame Detail Screen. |
| **Address Originator Field** | Selects the value used in the AP field to generate the PI field of a Mode S reply. [DF Messages] |
| **Power Level Field** | Selects the Power Level of the message. |
| **Time Field** | Selects the transmission time within the block of messages. |

### 3.4.19.2 TCAS Block Transmission Add Message Frame Detail Screen

The Frame Details Screen displays the detailed breakdown of a selected message. The detailed breakdown of the message can also be displayed by turning OFF the Display Softkey and double-clicking on the desired message. Message details can be edited using the fields on the Frame Details Softkey Menu.

**SCREEN SEQUENCE:**

TCAS Block Transmission Screen > Block Transmission Softkey > Add Message Softkey > Frame Details Softkey


**Figure 1.2.3 - 34 TCAS Block Transmission Message Frame Detai**

### 3.4.19.3 TCAS Block Transmission Message Details Softkey Menu

The Block Transmission Message Details Softkey Menu allows the user to define message parameters. This softkey menu is displayed by selecting a row from the table on the Block Transmission Screen and pressing the Message Details Softkey.

**NOTE: THE SCENARIO SOFTKEY IS DISABLED WHEN A TRANSMITTER FUNCTION (I.E., BLOCK TRANSMISSION) IS ENABLED (ON).**

**SCREEN SEQUENCE:**

TCAS Block Transmission Screen > Block Transmission Softkey > Message Details Softkey

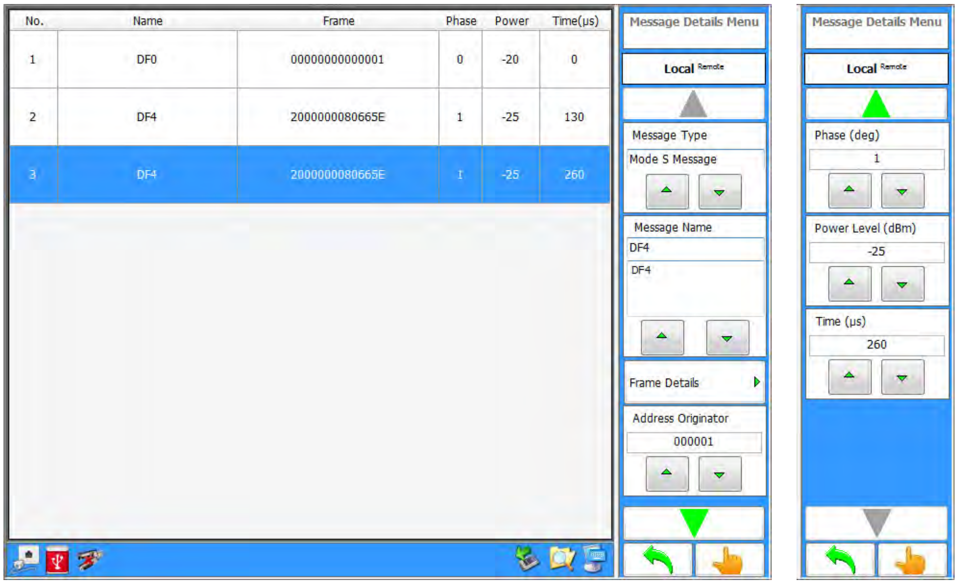



**Figure 1.2.3 - 35 TCAS Block Transmission Message Detail Softkey Menu**

### 3.4.20 TCAS SCENARIO SCREEN

The TCAS Scenario Screen allows the user to define a specific scenario (32 dynamic and 568 static intruders) for testing a TCAS System. The user can define Mode S Only, Mode S Extended (ADS-B), TIS-B (DF18) and ATCRBS (Mode A/C) intruders.

**SCREEN SEQUENCE:**

TCAS Screen > Scenario Softkey

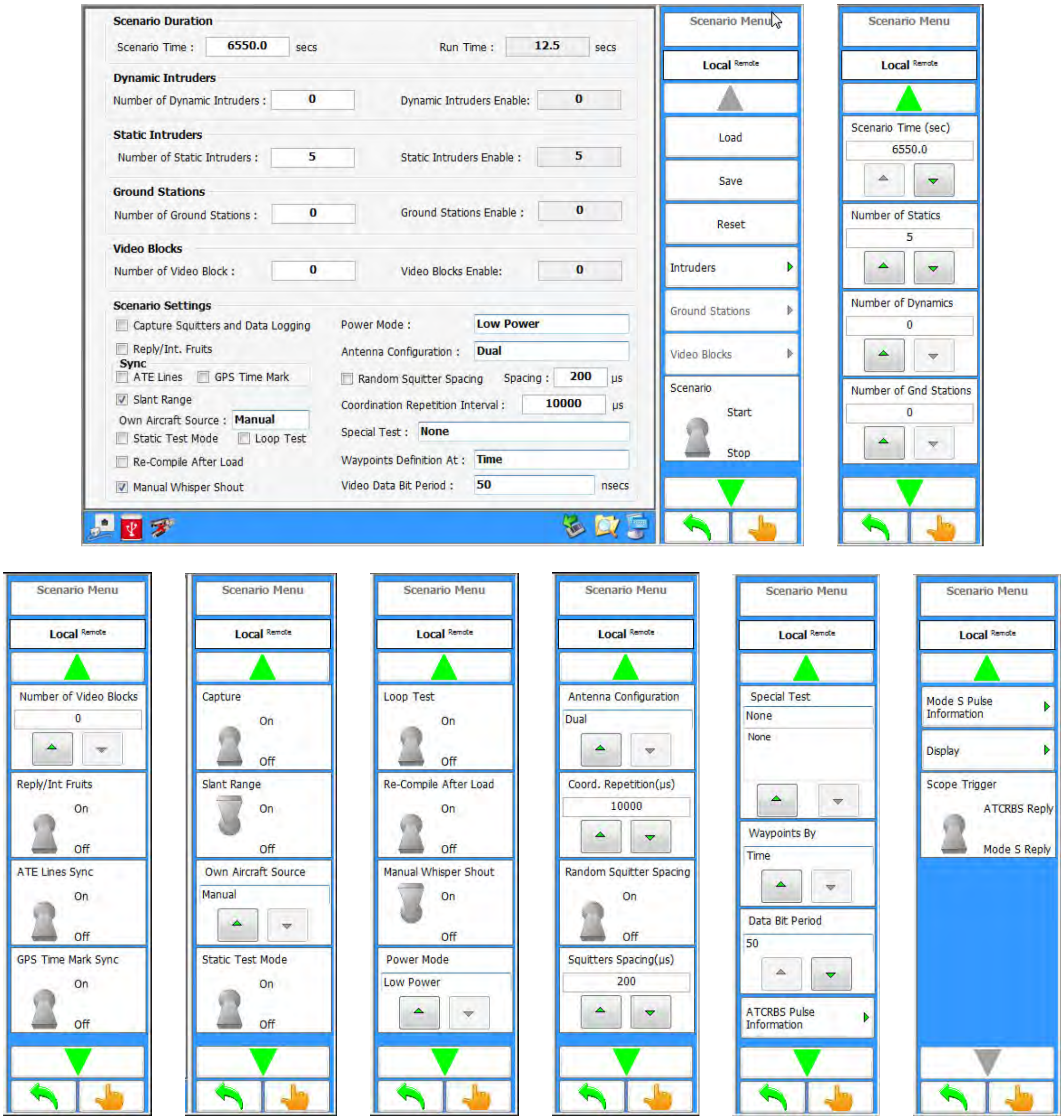



**Figure 1.2.3 - 36 TCAS Scenario Screen/Menu**

| Screen Components | Description |
|---|---|
| **Scenario Time Field** | Sets the scenario time (duration). |
| **Run Time Field** | Displays the Scenario Current Run Time. |

| Screen Components | Description |
|---|---|
| **Number of Dynamic Intruders Field** | Sets the number of Dynamic Intruders. |
| **Dynamic Intruders Enable** | Sets the number of Dynamic Intruders enabled. |
| **Number of Static Intruders Field** | Sets the number of Static Intruders. |
| **Static Intruders Enable** | Sets the number of Static Intruders enabled. |
| **Number of Ground Stations Field** | Sets the number of Ground Stations. |
| **Ground Stations Enable** | Sets the number of Ground Stations enabled. |
| **Number of Video Blocks Field** | Sets the number of Video Blocks. |
| **Video Blocks Enable** | Sets the number of Video Blocks enabled. |
| **Capture Squitters and Data Logging Tick Box** | Allows the user to log all the messages received during the scenario according to the message mask assigned in the Receiver Screen. The data log is reset at the start of the scenario. |
| **Reply/Int. Fruits Tick Box** | Enables/disables the Reply/Interrogation Fruits. |
| **ATE Line Synchronization Tick Box** | Enables/disables the ATE Line Synchronization.<br>If synchronization is enabled, all scenario run time is synchronized to TCAS TISI sequence. (ATE Lines must be attached to the Test Set.) |
| **Slant Range Tick Box** | Enables/disables the Slant Range.<br>If enabled, the Test Set calculates the range using the intruder range, intruder altitude and Own Aircraft altitude.<br>If disabled, the range is the horizontal range that is defined in the intruder definition. |
| **Own Aircraft Source Menu** | Allows the user to select the Own Aircraft data to be entered manually, through 429, external (TCP/IP) or from the UUT squitters. |
| **Static Test Mode Tick Box** | Enables/disables the Static Test Mode.<br>If enabled, the dynamic intruders stay active after the runtime has reached the scenario time with the last position. |
| **Recompile After Load Tick Box** | Enables/disables the Recompile After Load.<br>If enabled, when a scenario file is loaded, all the Mode S Squitters are recompiled. |
| **Manual Whisper Shout Tick Box** | Enables/disables the Manual Whisper Shout.<br>If enabled, the user must enter the whisper shout level for any ATCRBS intruder.<br>If disabled, the whisper shout level is determined by the OEM and range of intruder. |
| **Power Mode Menu** | Sets the scenario for high, low or very low power mode.<br>High Power Mode: the Unit transmits no UF messages.<br>Very Low Power Mode: requires Unit hardware and calibration. |
| **Antenna Configuration Menu** | Selects the Dual Antenna (Top Only or Bottom Only). |
| **Random Squitter Spacing Tick Box** | Allows the user to select the Random Squitter Spacing. |

| Screen Components | Description |
|---|---|
| **Spacing (Squitter) Field** | Allows the user to select the Squitter Spacing.<br>If random squitter spacing is enabled, the Test Set generates the squitters with random spacing between 150 and 500 µs.<br>If random squitter spacing is selected, the number of intruders cannot be set at the maximum number. |
| **Coordination Repetition Interval Field** | Defines the Time interval between coordination interrogations if the TCAS system does <u>not</u> reply. The maximum number of repetitions is 10 interrogations. The Interval range is 1000 to 65000 µs. |
| **Special Test Menu** | Selects the Special Test. |
| **Waypoint Definition At Menu** | Selects the waypoints by time, location (latitude and longitude realistic airplane simulation) or forced trajectory (latitude and longitude pass over). |
| **Video Data Bit Period Menu** | Selects the period of a Video Block Data Bit. |
| **Load Softkey** | Allows the user to load a saved scenario configuration. |
| **Save Softkey** | Allows the user to store the current scenario configuration to a file. |
| **Reset Softkey** | Allows the user to clear all intruders, ground stations and video blocks data. |
| **Intruders Softkey** | Allows the user to display an Intruder Definition Screen. Refer to Section 3.4.21, TCAS Scenario Intruders Screen. |
| **Ground Stations Softkey** | Allows the user to select the Ground Stations. Refer to Section 3.4.22, TCAS Scenario Ground Station Screen. |
| **Video Blocks Softkey** | Allows the user to select the Video Blocks. Refer to Section 3.4.23, TCAS Video Blocks Screen. |
| **Scenario Toggle Switch** | Allows the user to select the Scenario Stop/Start. |
| **Waypoints By Menu** | Allows the user to select the waypoints by time, location (latitude and longitude realistic airplane simulation) or forced trajectory (latitude and longitude pass over). |
| **Data Bit Period Field** | Allows the user to define the Data Bit Period. |
| **ATCRBS Pulse Information Softkey** | Accesses the ATCRBS Pulse Definition Screen. Refer to Section 3.4.24, TCAS ATCRBS Pulse Information Screen. |
| **Mode S Pulse Information Softkey** | Accesses the Mode S Pulse Definition Screen. Refer to Section 3.4.25, TCAS Mode S Pulse Information Screen. |
| **Display Softkey** | Accesses the Display Softkey Menu. Refer to Section 3.4.26, TCAS Display. |
| **Scope Trigger Toggle Switch** | Selects type of reply that triggers the Scope. |

### 3.4.21 TCAS SCENARIO INTRUDERS SCREEN

The components that are available on the TCAS Scenario Intruders Screen are determined by the selected Intruder Type as well as the Intruder Mode .

Refer to the following sections for Type/Mode specific user screen descriptions:

#### 3.4.21.1 TCAS Intruders Static Mode S TCAS Only

Allows the user to define a Static Mode S only (non-ADS-B) intruder.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey >Type: Static > Mode: Mode S TCAS Only

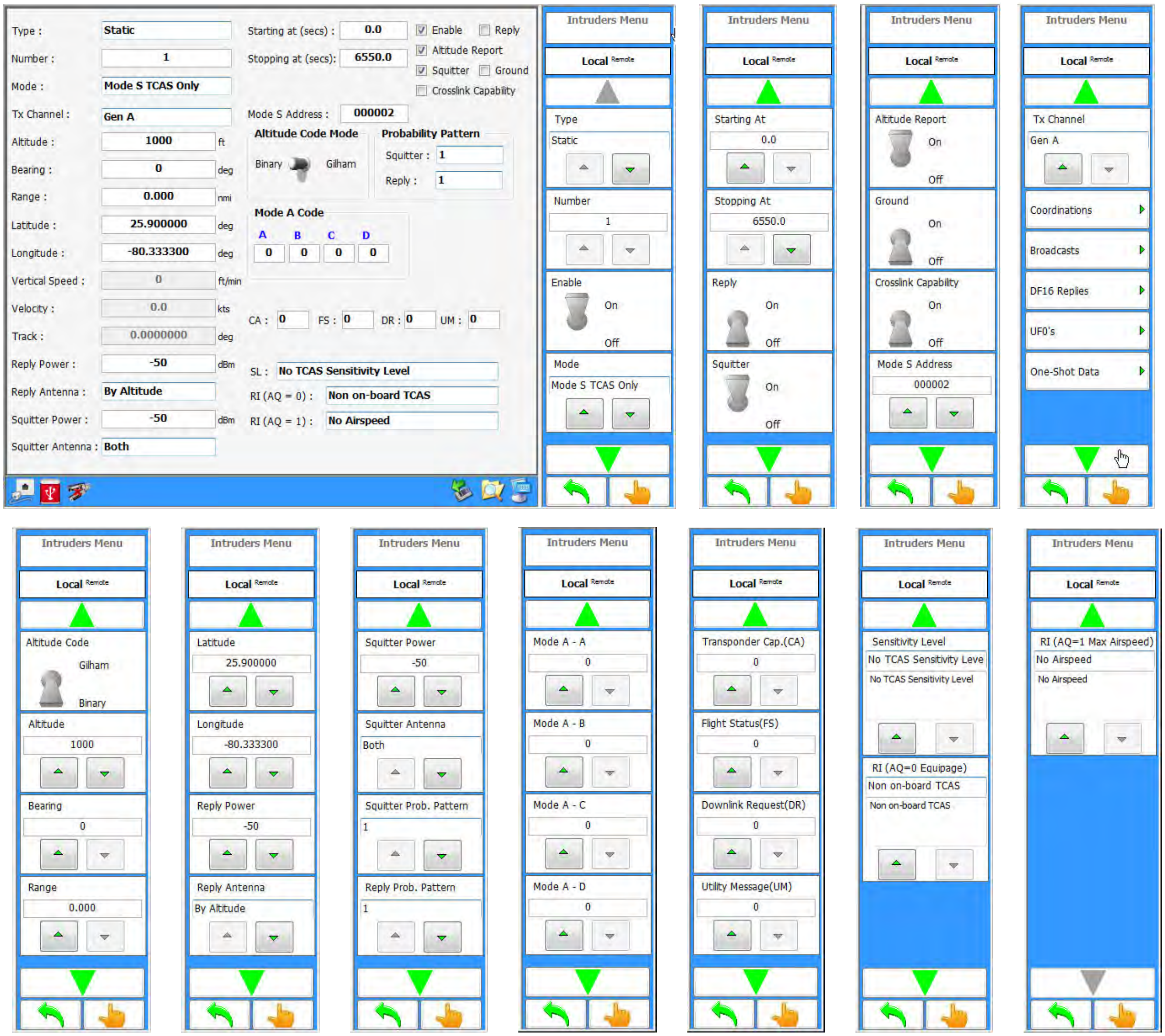



**Figure 1.2.3 - 37 TCAS Scenario Static Mode S Screen/Menu Sequence**

| Screen Components | Description |
|---|---|
| **Type Menu** | Selects the type of scenario. |
| **Number Field** | Defines the number of intruders for the scenario. |
| **Mode Menu** | Selects the Mode. |
| **Tx Channel Field** | Selects the Tx Channel. Tx Channels are defined on the TCAS Settings user Screen. Refer to Section 3.4.1, TCAS Settings Screen. |
| **Altitude Field** | Defines the Altitude. |
| **Bearing (Phase) Field** | Defines the Bearing (Phase). |
| **Range Field** | Defines the Range. |
| **Latitude Field** | Defines the Latitude. |
| **Longitude Field** | Defines the Longitude. |
| **Vertical Speed Field** | Defines the Vertical Speed. |
| **Velocity Field** | Defines the Velocity (Squitter). |
| **Track Field** | Defines the Track Angle. |
| **Reply Power Field** | Defines the Reply Power. |
| **Reply Antenna Field** | Defines the Reply Antenna. |
| **Squitter Power Field** | Defines the Squitter Power. |
| **Squitter Antenna Menu** | Defines the Squitter Antenna. |
| **Starting at Field** | Defines the start time. |
| **Stopping at Field** | Defines the stop time. |
| **Mode S Address Field** | Defines the Mode S Address (Hexadecimal). |
| **Enable Tick Box** | Enables/disables transmitting the required messages for this intruder. |
| **Reply Tick Box** | Enables/disables the Reply. |
| **Altitude Report Tick Box** | Enables/disables the Altitude Report.<br>If enabled, the altitude code is present in the reply.<br>If disabled, the altitude code is set to 0. |
| **Squitter Tick Box** | Enables/disables the Squitter. |
| **Ground Tick Box** | Enables/disables setting the intruder on the ground. |
| **Crosslink Capability Tick Box** | Enables/disables the Crosslink Capability |
| **Altitude Code Mode Toggle Switch** | Selects the Altitude Code Mode. |
| **Squitter Menu** | Selects the Squitter Probability Pattern. |
| **Reply Menu** | Selects the Reply Probability Pattern. |

| Screen Components | Description |
|---|---|
| **Mode A Code Field** | Selects the Mode A Code. |
| **CA Field** | Defines the Transponder Capability. |
| **FS Field** | Defines the Flight Status. |
| **DR Field** | Defines the Downlink Request. |
| **UM Field** | Defines the Utility Message. |
| **SL Menu** | Selects the Sensitivity Level. |
| **RI (AQ = 0)** | Selects the Runway Incursion (Acquisition = 0). |
| **RI (AQ = 1)** | Selects the Runway Incursion (Acquisition = 1). |
| **Coordinations Softkey** | Accesses the Coordinations Screen. Refer to Section 3.4.21.2, TCAS Intruders Static Mode S Coordinations Message Screen. |
| **Broadcasts Softkey** | Accesses the Broadcasts Screen. Refer to Section 3.4.21.3, TCAS Intruders Static Mode S Broadcast Message Screen. |
| **DF16 Replies Softkey** | Accesses the DF-16 Replies Screen. Refer to Section 3.4.21.3.2, TCAS Intruders Static Mode S DF16 Replies Screen. |
| **UF0's Softkey** | Accesses the UF0's Screen. Refer to Section 3.4.21.3.4, TCAS Intruders Static Mode S UF0's Screen. |
| **One Shot Data Softkey** | Accesses the One Shot Data Screen. Refer to Section 3.4.21.2, TCAS Intruders Static Mode S Coordinations Message Screen. |

### 3.4.21.2 TCAS Intruders Static Mode S Coordinations Message Screen

The TCAS Static Mode S Coordination Message Screen allows the user to define the coordination message of a Mode S intruder.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: Mode S TCAS Only > Coordinations Softkey

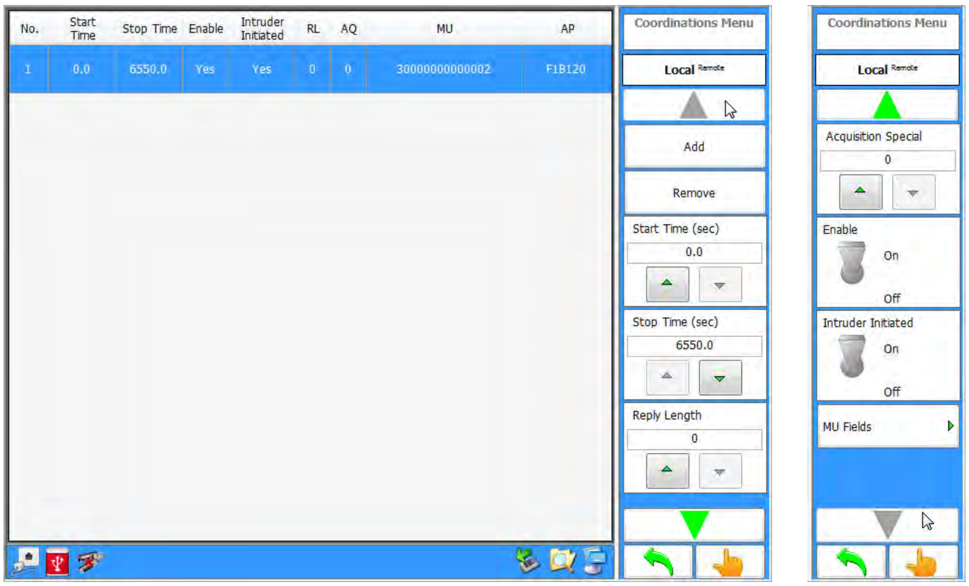



**Figure 1.2.3 - 38 TCAS Intruders Coordination Message Screen/Menu**

| Screen Components | Description |
|---|---|
| **Add Softkey** | Allows the user to add a new coordination message. |
| **Remove Softkey** | Allows the user to remove the selected coordination message. |
| **Start Time Field** | Defines the start time of the selected coordination message. |
| **Stop Time Field** | Defines the stop time of the selected coordination message. |
| **Reply Length Field** | Defines the RL bit of the coordination message. |
| **Acquisition Special Field** | Defines the AQ bit of the coordination message. |
| **Enable Toggle Switch** | Enables/disables the coordination messages. |
| **Intruder Initiated** | Enables/disables the Intruder Initiated.<br>If yes (on), the intruder sends the coordination message at the appropriate time specified.<br>If no (off), the intruder waits for an UUT coordination message at the appropriate time before transmitting a coordination message. |
| **MU Fields Softkey** | Accesses the MU Fields Screen. Refer to Section 3.4.21.2.0.1, TCAS Intruders Static Mode S Coordination Message - MU Fields Screen. |

#### 3.4.21.2.0.1 TCAS Intruders Static Mode S Coordination Message - MU Fields Screen

This screen displays the MU Field details found in the Coordination Message. Message details can be edited using the settings on the Softkey Menu.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: Mode S TCAS Only > Coordinations Softkey > MU Fields Softkey

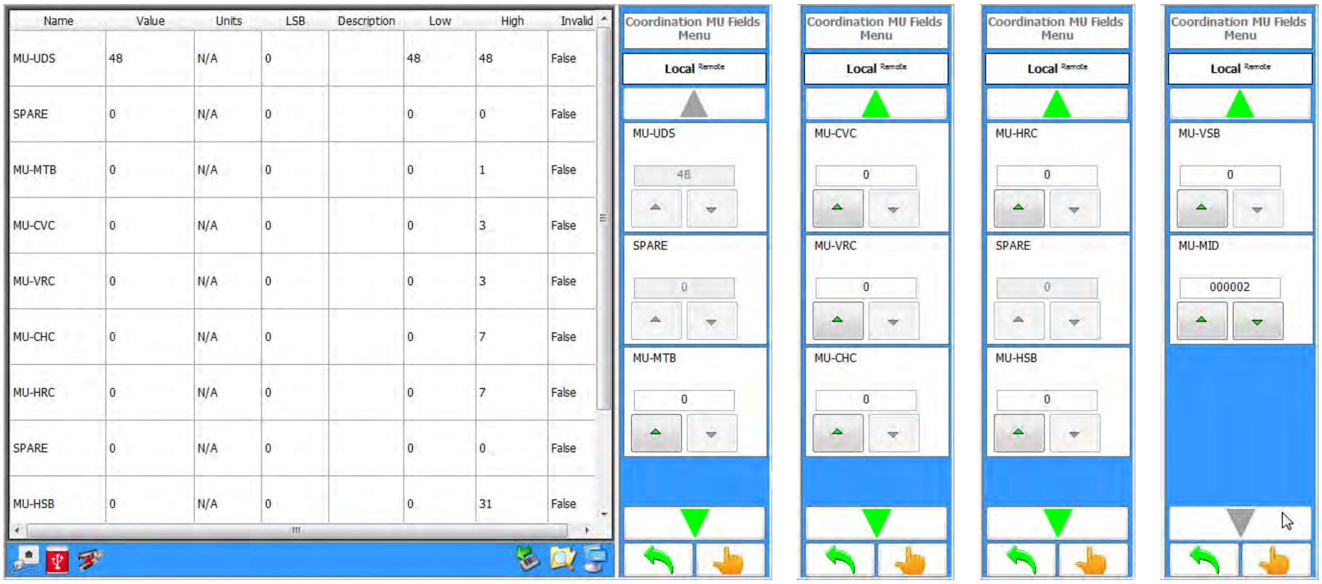



**Figure 1.2.3 - 39 TCAS Intruders Coordination Message MU Fields Screen**

### 3.4.21.3 TCAS Intruders Static Mode S Broadcast Message Screen

The Broadcasts (Message Definition) Screen allows the user to define the broadcast message of a Mode S intruder. Message details can be edited using the settings on the Softkey Menu.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: Mode S TCAS Only > Broadcasts Softkey

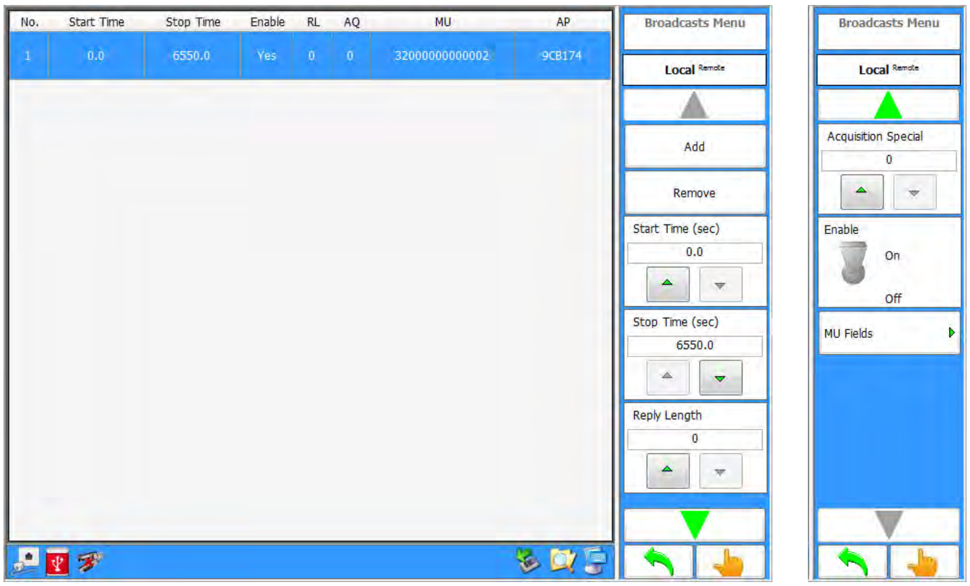



**Figure 1.2.3 - 40 TCAS Intruders Broadcast Message Screen/Menu**

| Screen Components | Description |
|---|---|
| **Add Softkey** | Allows the user to add a new broadcast message. |
| **Remove Softkey** | Allows the user to remove the selected broadcast message. |
| **Start Time Field** | Allows the user to select the start time of the selected broadcast message. |
| **Stop Time Field** | Allows the user to select the stop time of the selected broadcast message. |
| **Reply Length Field** | Allows the user to select the RL bit of the broadcast message. |
| **Acquisition Special Field** | Allows the user to select the AQ bit of the broadcast message. |
| **Enable Toggle Switch** | Enables/disables broadcast messages. |
| **MU Fields Softkey** | Accesses the MU Fields Screen. Refer to Section 3.4.21.3.1, TCAS Intruders Static Mode S Broadcast Message MU Fields Screen. |

### 3.4.21.3.1 TCAS Intruders Static Mode S Broadcast Message MU Fields Screen

This screen is used to define the MU Fields details in the Broadcast Message. Data is edited using the settings on the Softkey Menu.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: Mode S TCAS Only > Broadcasts Softkey > Broadcasts Softkey > MU Fields Softkey

**NOTE: THIS SCREEN CAN ALSO BE ACCESSED BY DOUBLE TAPPING/CLICKING A ROW ON THE BROADCAST SCREEN.**

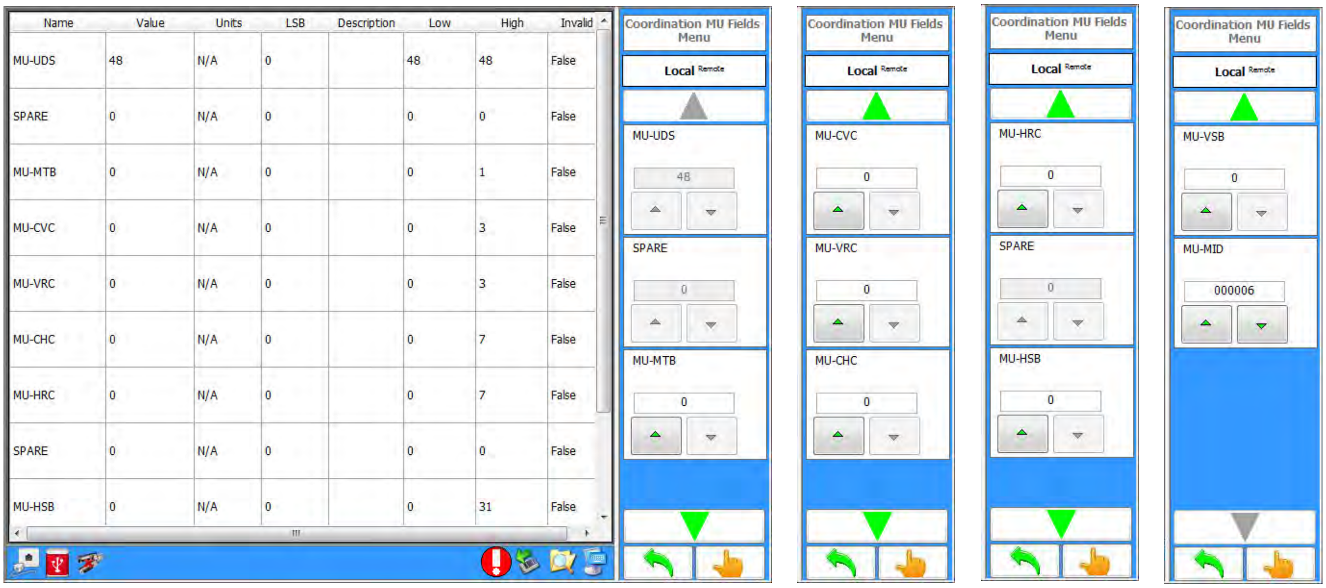



**Figure 1.2.3 - 41 TCAS Intruders Broadcast Message - MU Fields**

### 3.4.21.3.2 TCAS Intruders Static Mode S DF16 Replies Screen

Allows the user to define the coordination reply message of a Mode S intruder.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: Mode S TCAS Only > DF16 Replies Softkey

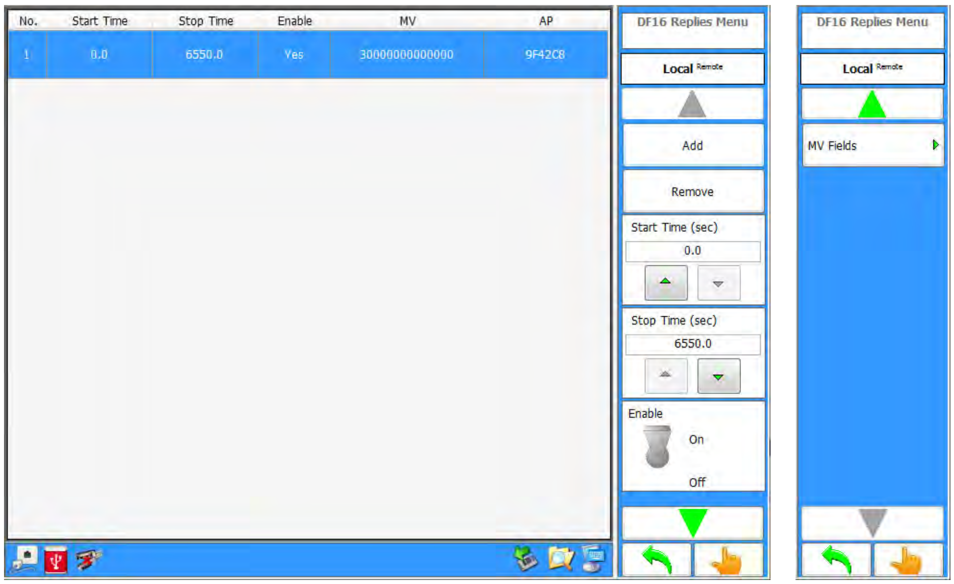



**Figure 1.2.3 - 42 TCAS Intruders DF16 Replies Screen**

| Screen Components | Description |
|---|---|
| **Add Softkey** | Allows the user to add a new coordination reply. |
| **Remove Softkey** | Allows the user to remove the selected coordination reply. |
| **Start Time Field** | Allows the user to select the start time of the selected coordination replies message. |
| **Stop Time Field** | Allows the user to select the stop time of the selected coordination replies message. |
| **Enable Toggle Switch** | Enables/disables coordination replies messages. |
| **MV Field Softkey** | Accesses the MV Fields Screen. Refer to Section 3.4.21.3.3, TCAS Intruders Static Mode S DF16 Replies MV Fields. |

#### 3.4.21.3.3 TCAS Intruders Static Mode S DF16 Replies MV Fields

The DF16 Replies Screen allows the user to define MV Field data included in the DF16 Reply message.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: Mode S TCAS Only > DF16 Replies Softkey > MV Fields Softkey

**NOTE: THIS SCREEN CAN ALSO BE ACCESSED BY DOUBLE TAPPING/CLICKING A ROW ON THE DF16 REPLIES SCREEN.**


**Figure 1.2.3 - 43 TCAS Intruders DF16 Reply MV Fields Screen**

### 3.4.21.3.4 TCAS Intruders Static Mode S UF0's Screen

The UFO's Screen allows the user to define the UF0 interrogation messages of a Mode S intruder.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: Mode S TCAS Only > UFO's Softkey

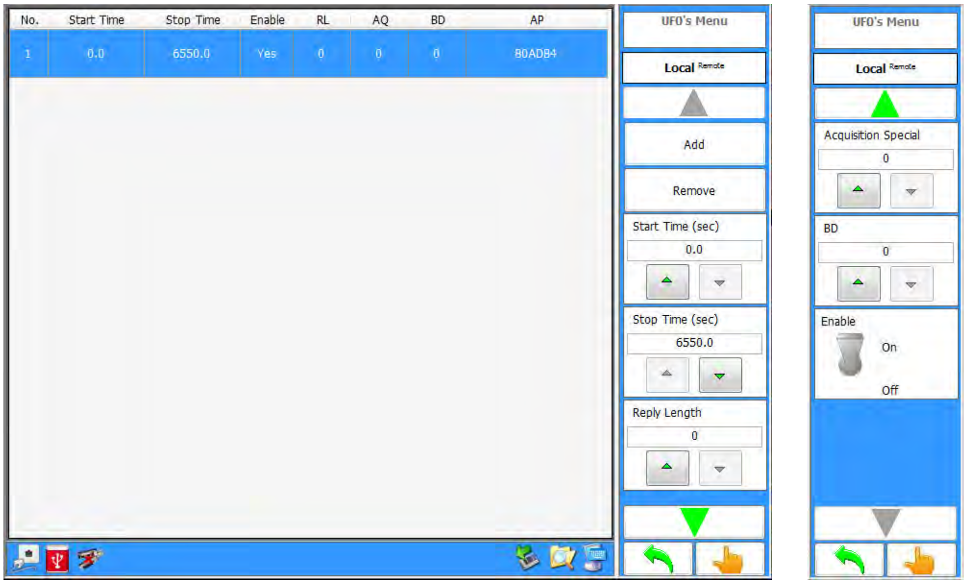



**Figure 1.2.3 - 44 TCAS Intruders UFO Screen/Menu**

| Screen Components | Description |
|---|---|
| **Add Softkey** | Allows the user to add a new UF0 interrogation. |
| **Remove Softkey** | Allows the user to remove an existing UF0 interrogation. |
| **Start Time Field** | Defines the Start Time. |
| **Stop Time Field** | Defines the Stop Time. |
| **Reply Length Field** | Defines the Reply Length. |
| **Acquisition Special Field** | Defines the Acquisition Special. |
| **BQ Field** | Defines the BD value. |
| **Enable Toggle Switch** | Enables/disables the UF0 interrogation. |

### 3.4.21.3.5 TCAS Intruders Static Mode S One-Shot Data Screen

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: Mode S TCAS Only > One-Shot Data Softkey

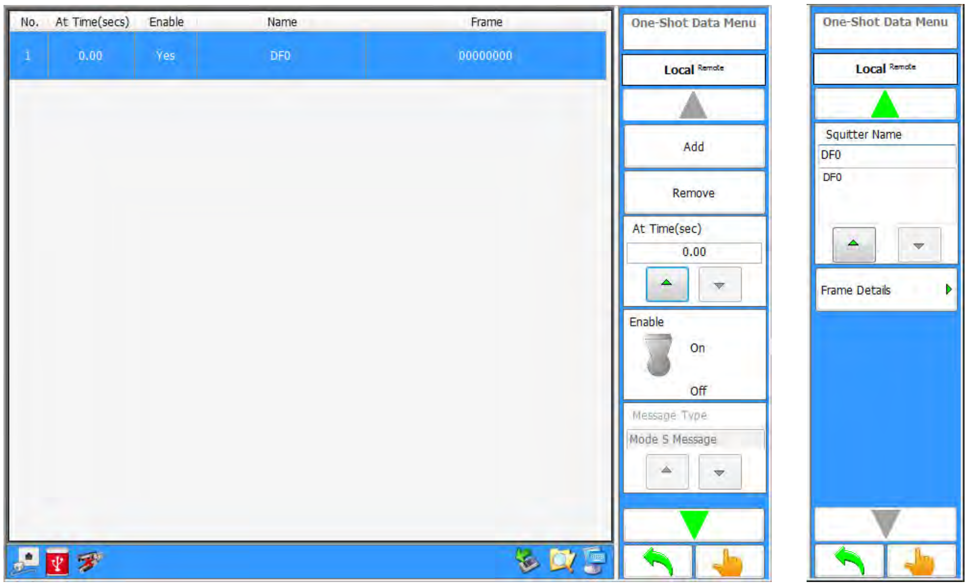



**Figure 1.2.3 - 45 Intruders One Shot Data Screen/Menu**

| Screen Components | Description |
|---|---|
| **Add Softkey** | Allows the user to add a new One Shot Data. |
| **Remove Softkey** | Allows the user to remove an existing One Shot Data. |
| **At Time Field** | Defines the Time. |
| **Enable Toggle Switch** | Enables/disables the One Shot Data. |
| **Message Type Menu** | Selects the Message Type. |
| **Squitter Name Field** | Defines the Squitter Name. |
| **Frame Details Softkey** | Accesses the One Shot Data Frame Details Screen. Refer to Section 3.4.21.3.6, TCAS Intruders Static Mode S One Shot Data Frame Details. |

### 3.4.21.3.6 TCAS Intruders Static Mode S One Shot Data Frame Details

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: Mode S TCAS Only > One-Shot Data Softkey > Frame Details Softkey


**Figure 1.2.3 - 46 One Shot Data Frame Details Screen**

### 3.4.21.4 TCAS Intruders Static TIS-B Only Screen

The Static TIS-B Only Screen allows the user to define all the parameters for a Static TIS-B (DF18) intruder. Parameters can be defined using the setting fields on the Main Display Area or by using the softkey menu.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: TIS-B Only

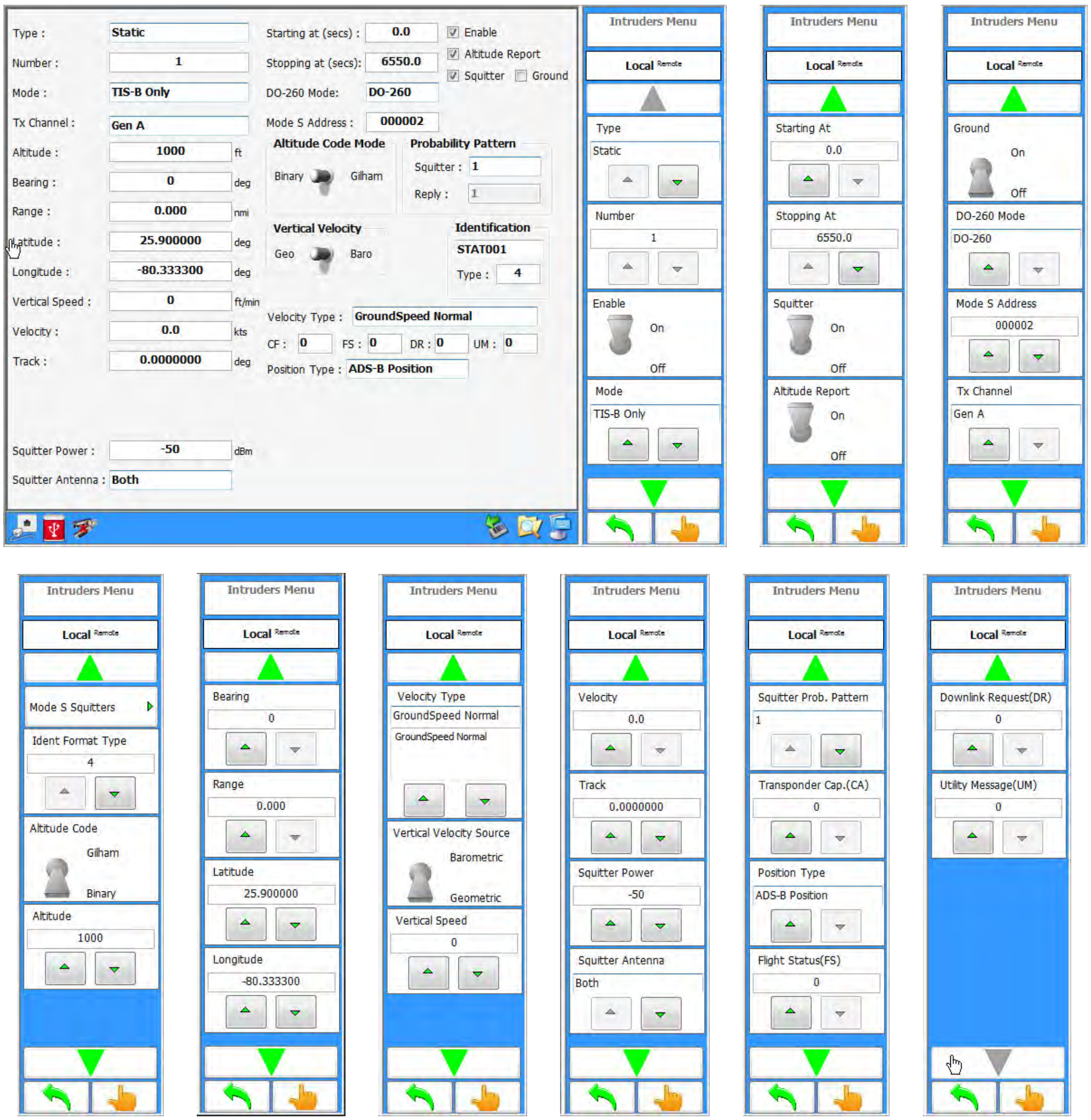



**Figure 1.2.3 - 47 TCAS Static TIS-B Only Screen/Menu**

| Screen Components | Description |
|---|---|
| **Type Menu** | Selects the Type of intruder. |
| **Number Field** | Allows the user to select the Number. |

| Screen Components | Description |
|---|---|
| **Mode Menu** | Selects the Mode. |
| **Tx Channel Menu** | Selects the Tx Channel. Tx Channels are defined on the TCAS Settings user Screen. Refer to Section 3.4.1, TCAS Settings Screen. |
| **Altitude Field** | Defines the Altitude. |
| **Bearing (Phase) Field** | Defines the Bearing (Phase). |
| **Range Field** | Defines the Range. |
| **Latitude Field** | Defines the Latitude. |
| **Longitude Field** | Defines the Longitude. |
| **Vertical Speed Field** | Defines the Vertical Speed. |
| Velocity Field | Defines the Velocity (Squitter). |
| **Track Field** | Defines the Track Angle. |
| **Squitter Power Field** | Defines the Squitter Power. |
| **Squitter Antenna Menu** | Selects the Squitter Antenna. |
| **Starting at Field** | Defines the start time. |
| **Stopping at Field** | Defines the stop time. |
| **DO-260 Mode Menu** | Selects the DO-260 Mode. |
| **Mode S Address Field** | Allows the user to select the Mode S Address (Hexadecimal). |
| **Enable (Transmit)** | Enables/disables transmitting the required messages for this intruder. |
| **Altitude Report** | Enables/disables the Altitude Report.<br>If enabled, the altitude code is present in the DF0 reply.<br>If disabled, the altitude code is set to 0. |
| **Squitter** | Enables/disables the Squitter. |
| **Ground** | Enables/disables setting the intruder on the ground. |
| **Altitude Code Mode Toggle Switch** | Selects the Altitude Code Mode. |
| **Probability Pattern** | |
| Squitter Field | Defines the Squitter Probability Pattern. |
| Reply Field | Defines the Reply Probability Pattern. |
| **Vertical Velocity** | Allows the user to select the Vertical Velocity. |
| **Identification Field** | Allows the user to select the Intruder Identification. |
| **Type Field** | Allows the user to select the Intruder Identification Type. |
| **Velocity Type Menu** | Selects the Velocity Type. |
| **CA Field** | Defines the Transponder Capability. |
| **FS Field** | Defines the Flight Status. |

| Screen Components | Description |
|---|---|
| **DR Field** | Defines the Downlink Request. |
| **UM Field** | Defines the Utility Message. |
| **Position Type Menu** | Selects the Position Type (Squitter). |

### 3.4.21.5 Static TIS-B Mode S Squitters Screen

This screen displays a table of defined squitters. ME Field data and Schedule data is displayed by selecting a squitter row from the table and pressing either the ME Fields or Schedule Softkey.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: TIS-B Only > Mode S Squitters Softkey

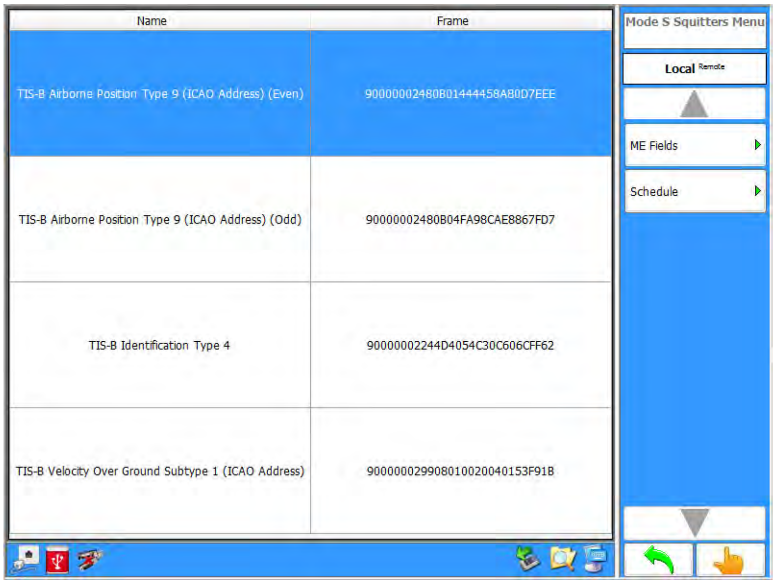



**Figure 1.2.3 - 48 Static TIS-B Mode S Squitters Users Screen**

### 3.4.21.5.1 Static TIS-B Mode S Squitters ME Fields Screen

This screen accesses ME Field details for the selected squitter.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: TIS-B Only > Mode S Squitters Softkey > ME Fields Softkey


**Figure 1.2.3 - 49 Static TIS-B Mode S Squitters ME Fields Users Screen**

### 3.4.21.5.2 Static IS-B Mode S Squitters Schedule Screen

This screen accesses Schedule details for the selected squitter.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: TIS-B Only > Mode S Squitters Softkey > Schedule Softkey

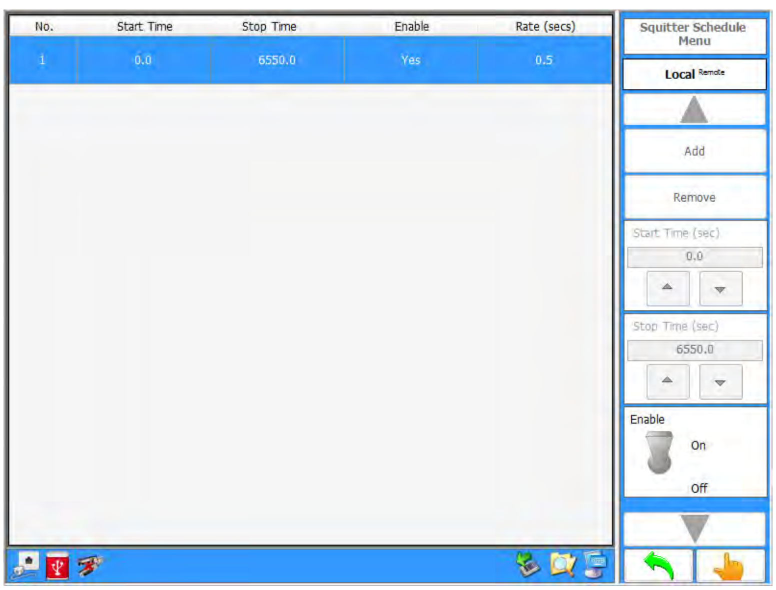



**Figure 1.2.3 - 50 Static TIS-B Mode S Squitters Schedule Users Screen**

### 3.4.21.6 TCAS Intruders Static ADS-R Screen

This screen accesses parameters for a static ADS-R (DF18) intruder. Parameters can be defined using the fields on the Main Display Area or on the Softkey Menu.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: ADS-R

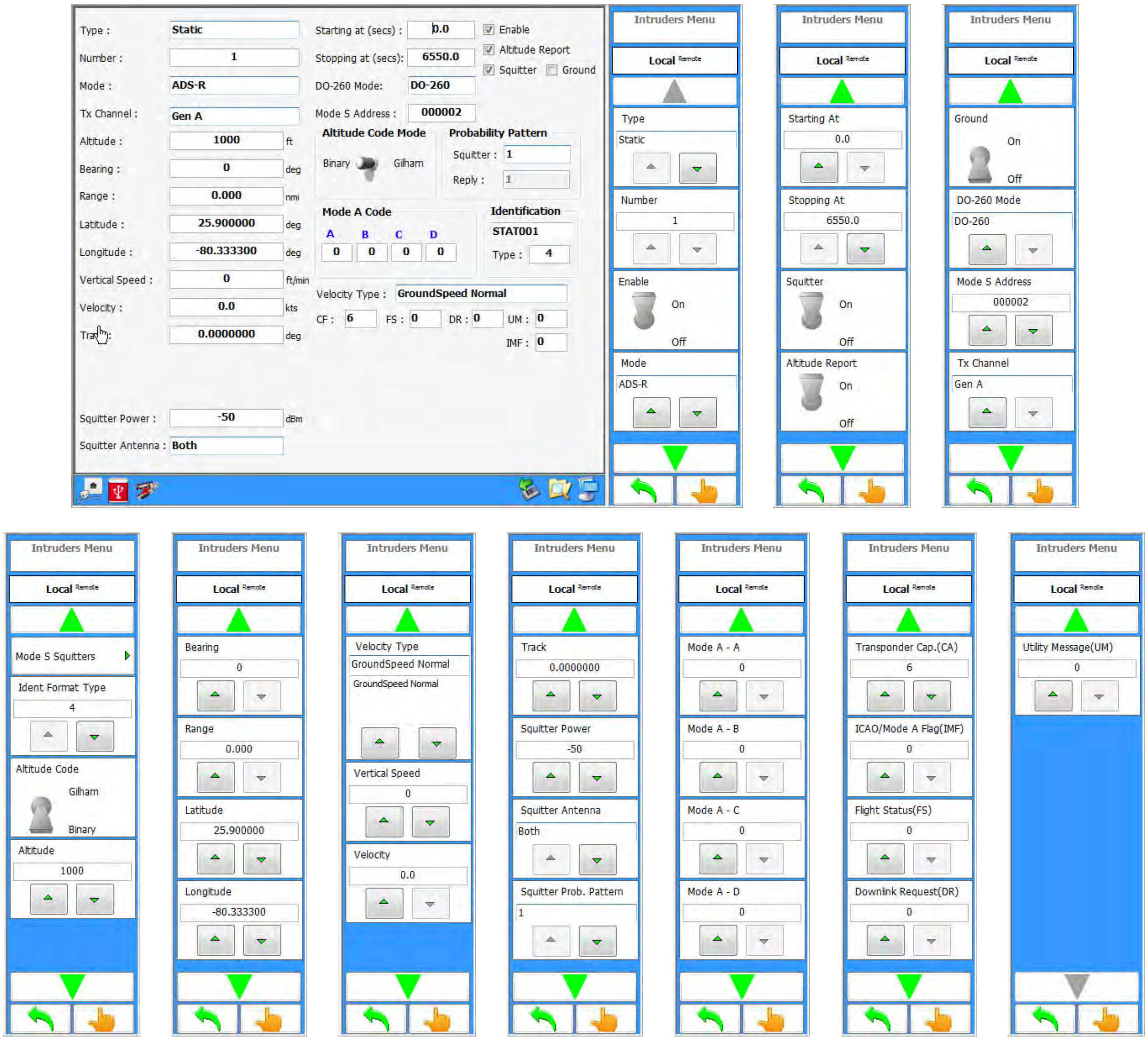


**Figure 1.2.3 - 51 TCAS Static ADS-R Screen**

| Screen Components | Description |
|---|---|
| **Type Menu** | Allows the user to select the Type. |
| **Number Field** | Defines the number of intruders includes in the scenario. |
| **Mode Menu** | Allows the user to select the Mode. |

| Screen Components | Description |
|---|---|
| **Tx Channel** | Selects the Tx Channel. Tx Channels are defined on the TCAS Settings user Screen. Refer to Section 3.4.1, TCAS Settings Screen. |
| **Altitude Field** | Defines the Altitude. |
| **Bearing (Phase) Field** | Defines the Bearing (Phase). |
| **Range Field** | Defines the Range. |
| **Latitude Field** | Defines the Latitude. |
| **Longitude Field** | Defines the Longitude. |
| **Vertical Speed Field** | Defines the Vertical Speed. |
| **Velocity Field** | Defines the Velocity. |
| **Track Field** | Defines the Track Angle. |
| **Squitter Power Field** | Defines the Squitter Power. |
| **Squitter Antenna Menu** | Selects the Squitter Antenna. |
| **Starting at Field** | Defines the start time. |
| **Stopping at Field** | Defines the stop time. |
| **DO-260 Mode Menu** | Selects the DO-260 Mode. |
| **Mode S Address Field** | Defines the Mode S Address (Hexadecimal). |
| **Enable (Transmit)** | Enables/disables transmitting the required messages for this intruder. |
| **Altitude Report** | Enables/disables the Altitude Report.<br>If enabled, the altitude code is present in the DF0 reply.<br>If disabled, the altitude code is set to 0. |
| **Squitter** | Enables/disables the Squitter. |
| **Ground** | Enables/disables setting the intruder on the ground. |
| **Altitude Code Mode Toggle** | Defines the Altitude Code Mode. |
| **Probability Pattern** | |
| Squitter Field | Defines the Squitter Probability Pattern. |
| Reply Field | Defines the Reply Probability Pattern. |
| **Mode A Code Field** | Defines the Mode A Code. |
| **Identification Field** | Defines the Intruder Identification. |
| **Type Field** | Defines the Intruder Identification Type. |
| **Velocity Type Menu** | Selects the Velocity Type. |
| **CF Field** | Defines the Transponder Capability. |
| **FS Field** | Defines the Flight Status. |

| Screen Components | Description |
|---|---|
| **DR Field** | Defines the Downlink Request. |
| **UM Field** | Defines the Utility Message. |
| **IMF Field** | Defines the Interrupt Master Enable Flag. |

### 3.4.21.6.1 TCAS Intruders Static ADS-R Mode S Squitters Screen

This screen accesses parameters for a static ADS-R Mode S intruder. ME Fields and Schedule data is displayed by selecting a row on the squitter table and pressing the ME Fields or Schedule Fields Softkey.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: ADS-R > Mode S Squitters Softkey

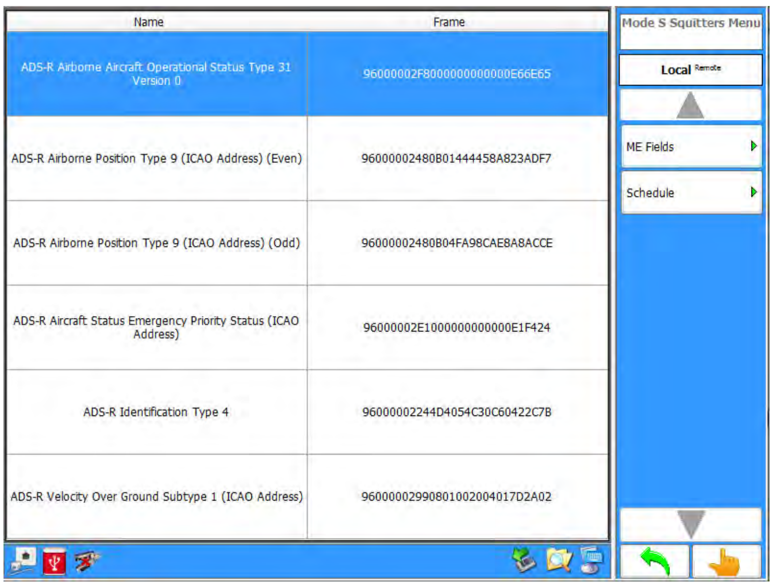



**Figure 1.2.3 - 52 TCAS Intruders Static ADS-R Squitters Screen**

### 3.4.21.6.2 Static ADS-R Squitters ME Fields Screen

This screen displays ME Field details for the selected squitter.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: ADS-R > Mode S Squitters Softkey > Action: Select Squitter > ME Fields Softkey


**Figure 1.2.3 - 53 Static ADS-R Squitters ME Fields Screen**

### 3.4.21.6.3 Static ADS-R Squitters Schedule Screen

This screen displays Schedule details for the selected squitter.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: ADS-R > Mode S Squitters Softkey > Action: Select Squitter > Schedule Softkey

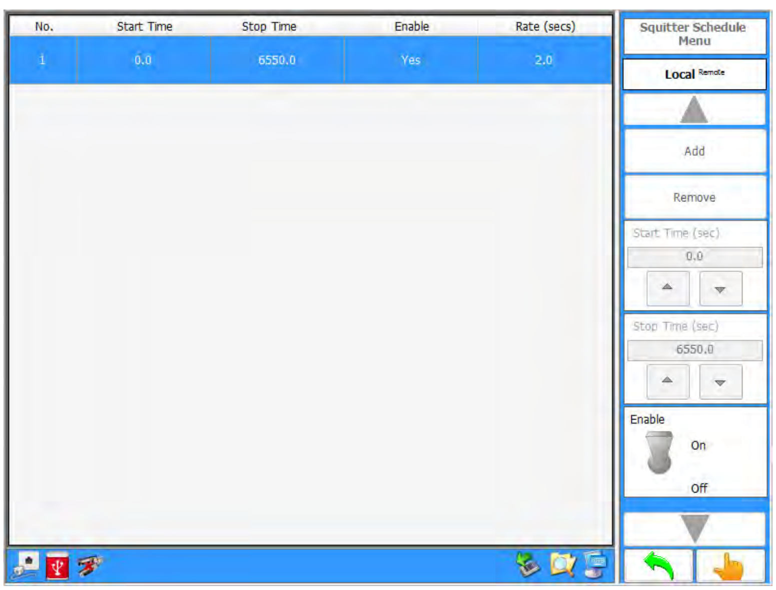



**Figure 1.2.3 - 54 Static ADS-R Squitters Schedule Screen**

### 3.4.21.7 TCAS Intruders Static Mode C Screen

This screen accesses all the parameters for Static Mode C intruder. Parameters can be defined using the fields on the Main Display Area or on the Softkey Menu.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: Mode C

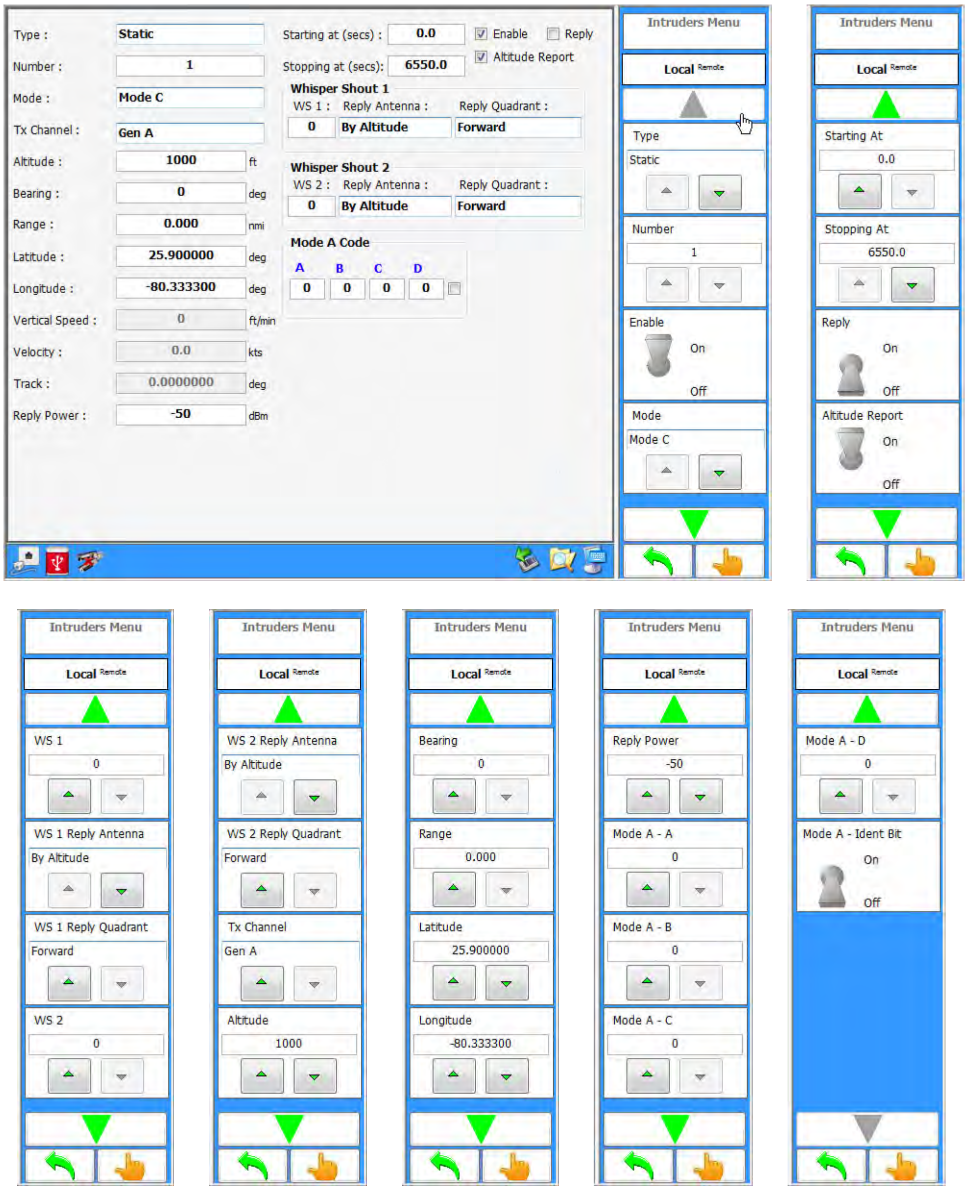



**Figure 1.2.3 - 55 TCAS Intruders Static Mode C Screen/Menu**

| Screen Components | Description |
|---|---|
| **Type Menu** | Selects the Type. |
| **Number Field** | Sets the Number. |
| **Mode Menu** | Selects the Mode. |

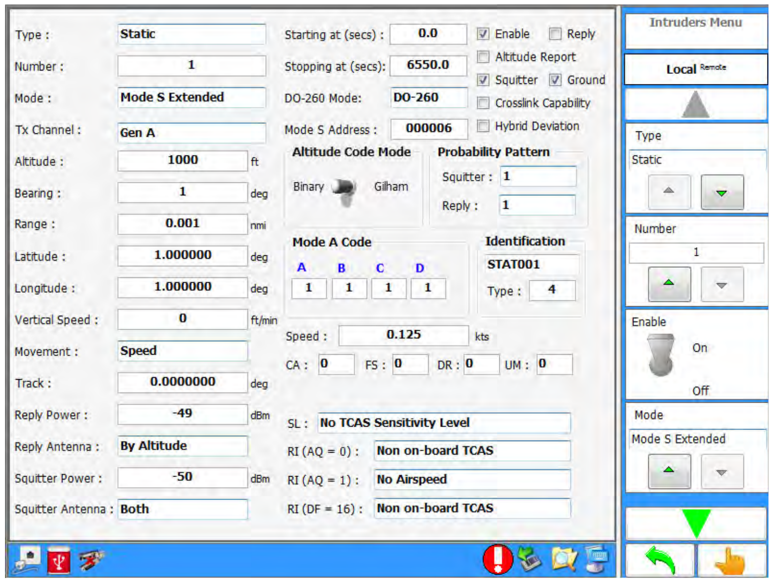
| Screen Components | Description |
|---|---|
| **Tx Channel Menu** | Selects the Tx Channel. Tx Channels are defined on the TCAS Settings user Screen. Refer to Section 3.4.1, TCAS Settings Screen. |
| **Altitude Field** | Defines the Altitude. |
| **Bearing (Phase) Field** | Defines the Bearing (Phase). |
| **Range Field** | Defines the Range. |
| **Latitude Field** | Defines the Latitude. |
| **Longitude Field** | Defines the Longitude. |
| **Vertical Speed Field** | Defines the Vertical Speed. |
| **Velocity Field** | Defines the Velocity. Value is edited on the Softkey Menu. |
| **Track Field** | Defines the Track Angle. |
| **Reply Power Field** | Selects the Reply Power. |
| **Starting at Field** | Selects the start time. |
| **Stopping at Field** | Selects the stop time. |
| **Enable (Transmit)** | Enables/disables transmitting the required messages for this intruder. |
| **Reply** | Enables/disables the Reply. |
| **Altitude Report** | Enables/disables the Altitude Report.<br>If enabled, the altitude code pulses are transmitted with the framing pulses.<br>If disabled, only the framing pulses are transmitted. |
| **Whisper Shout 1** | |
| WS 1 | Defines the Whisper Shout 1 Level. |
| Reply Antenna Menu | Selects the Whisper Shout 1 Reply Antenna. |
| Reply Quadrant Menu | Selects the Whisper Shout 1 Reply Quadrant. |
| **Whisper Shout 2** | |
| WS 2 | Defines the Whisper Shout 2 Level. |
| Reply Antenna Menu | Selects the Whisper Shout 2 Reply Antenna. |
| Reply Quadrant Menu | Selects the Whisper Shout 2 Reply Quadrant. |
| **Mode A Code Fields** | Define the Mode A Code. |
| **Mode A Ident Bit** | Enables/Disables Mode A Code fields. |

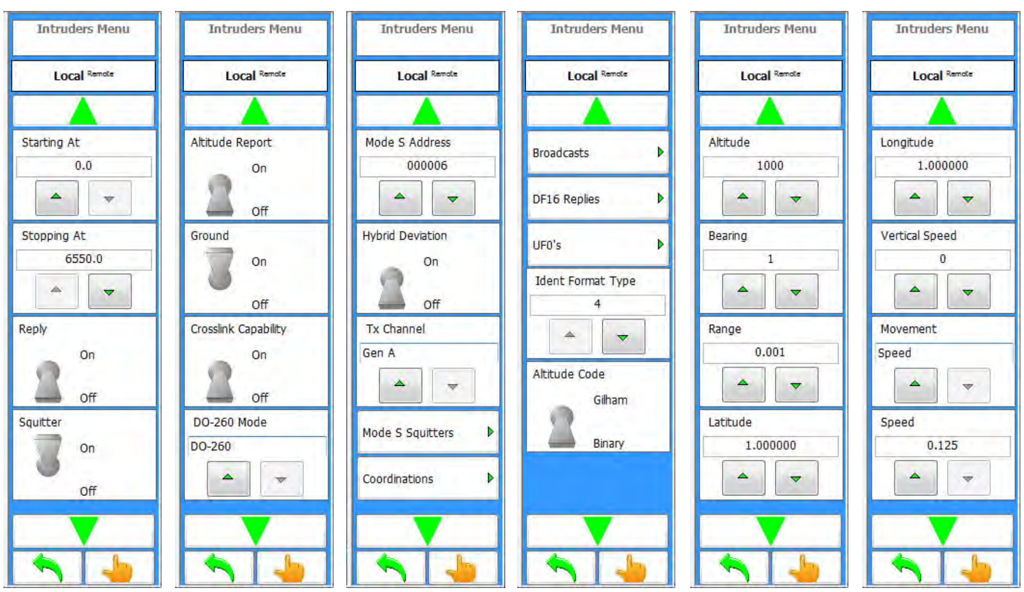
### 3.4.21.8 TCAS Intruders Static Mode S Extended Screen

Accesses all the parameters for a Static Mode S Extended intruder. Parameters can be defined using the fields on the Main Display Area or on the Softkey Menu.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: Mode S Extended



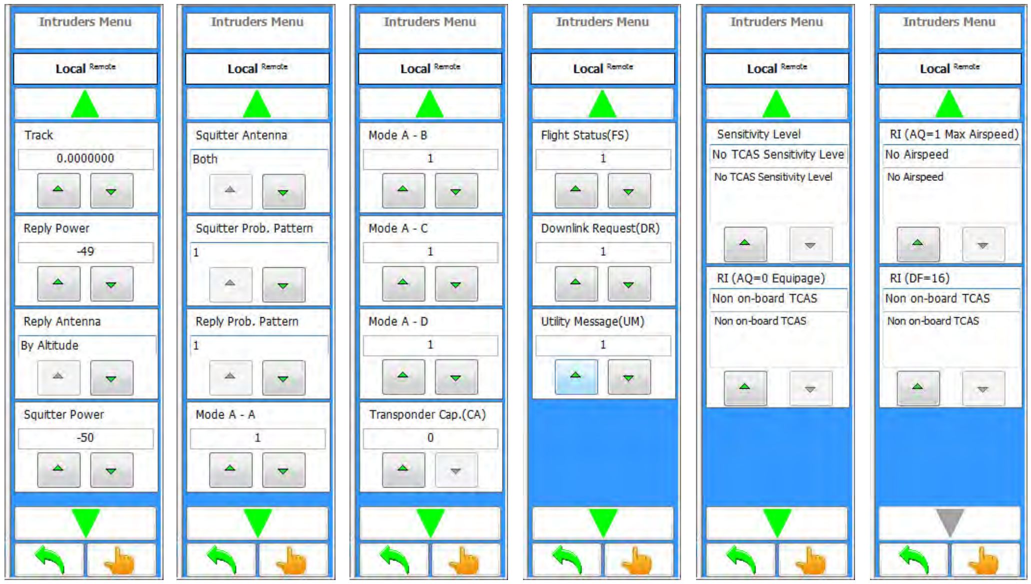



**Figure 1.2.3 - 56 TCAS Intruders Static Mode S Extended Screens and Menus**

| Screen Components | Description |
|---|---|
| **Type Menu** | Selects the Type. |
| **Number Field** | Defines the Number. |
| **Mode Menu** | Defines the Mode. |
| **Tx Channel Menu** | Selects the Tx Channel. Tx Channels are defined on the TCAS Settings user Screen. Refer to Section 3.4.1, TCAS Settings Screen. |
| **Altitude Field** | Defines the Altitude (Gilham). |
| **Bearing (Phase) Field** | Defines the Bearing (Phase). |
| **Range Field** | Defines the Range. |
| **Latitude Field** | Defines the Latitude. |
| **Longitude Field** | Defines the Longitude. |
| **Vertical Speed Field** | Defines the Vertical Speed. |
| **Velocity Field** | Defines the Velocity (Squitter). |
| **Track Field** | Defines the Track Angle. |
| **Reply Power Field** | Defines the Reply Power. |
| **Reply Antenna Menu** | Selects the Reply Antenna. |
| **Squitter Power Field** | Defines the Squitter Power. |
| **Squitter Antenna Menu** | Selects the Squitter Antenna. |
| **Starting at Field** | Defines the start time. |
| **Stopping at Field** | Defines the stop time. |

| Screen Components | Description |
|---|---|
| **DO-260 Mode Menu** | Selects the DO-260 Mode. |
| **Mode S Address Field** | Defines the Mode S Address (Hexadecimal). |
| **Enable** | Enables/disables transmitting the required messages for this intruder. |
| **Reply** | Enables/disables the Reply. |
| **Altitude Report** | Enables/disables the Altitude Report.<br>If enabled, the altitude code is present in the DF0 reply.<br>If disabled, the altitude code is set to 0. |
| **Squitter** | Enables/disables the Squitter. |
| **Ground** | Enables/disables setting the intruder on the ground. |
| **Crosslink Capability** | Enables/disables the Crosslink Capability |
| **Hybrid Deviation** | Enables/disables the Hybrid Deviation.<br>If enabled, allows entry of range, bearing and altitude deviation values. |
| **Altitude Code Mode Toggle Switch** | Selects the Altitude Code Mode. |
| **Probability Pattern** | |
| Squitter | Defines the Squitter Probability Pattern. |
| Reply | Defines the Reply Probability Pattern. |
| **Vertical Speed Menu** | Selects the Vertical Speed. |
| **Mode A Code Fields** | Defines the Mode A Code. |
| **Identification Field** | Defines the Intruder Identification. |
| **Type Field** | Defines the Intruder Identification Type. |
| **Velocity Type Menu** | Selects the Velocity Type. |
| **CA Field** | Defines the Transponder Capability. |
| **FS Field** | Defines the Flight Status. |
| **DR Field** | Defines the Downlink Request. |
| **UM Field** | Defines the Utility Message. |
| **SL Menu** | Selects the Sensitivity Level. |
| **RI (AQ = 0) Menu** | Selects the Runway Incursion (Acquisition = 0). |
| **RI (AQ = 1) Menu** | Selects the Runway Incursion (Acquisition = 1). |
| **RI (DF = 16) Menu** | Selects the Runway Incursion (Direction Finding = 16). |
| **Mode S Squitters Softkey** | Accesses the Mode S Squitter Definition Screen. Refer to Section 3.4.21.8.1, TCAS Static Mode S Extended Mode S Squitter Screen. |
| **Coordinations Softkey** | Accesses the Coordinations Screen. Refer to Section 3.4.21.8.2, TCAS Mode S Extended Coordinations Screen. |

| Screen Components | Description |
|---|---|
| **Broadcasts Softkey** | Accesses the Broadcasts Screen.Refer to Section 3.4.21.8.3, TCAS Mode S Extended Broadcasts Screen. |
| **DF16 Replies Softkey** | Accesses the DF-16 Replies Screen.Refer to Section 3.4.21.8.4, TCAS Mode S Extended DF16 Replies Screen. |
| **UF0's Softkey** | Accesses the UF0's Screen.Refer to Section 3.4.21.8.5, TCAS Mode S Extended UFO's Screen. |

#### 3.4.21.8.1 TCAS Static Mode S Extended Mode S Squitter Screen

The Mode S Squitter Definition Screen allows the user to define all the parameters for a Mode S ADS-B intruder. Additional information is accessed by selecting a row from the data table and pressing a softkey on the Softkey Menu.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: Mode S Extended > Mode S Squitters Softkey

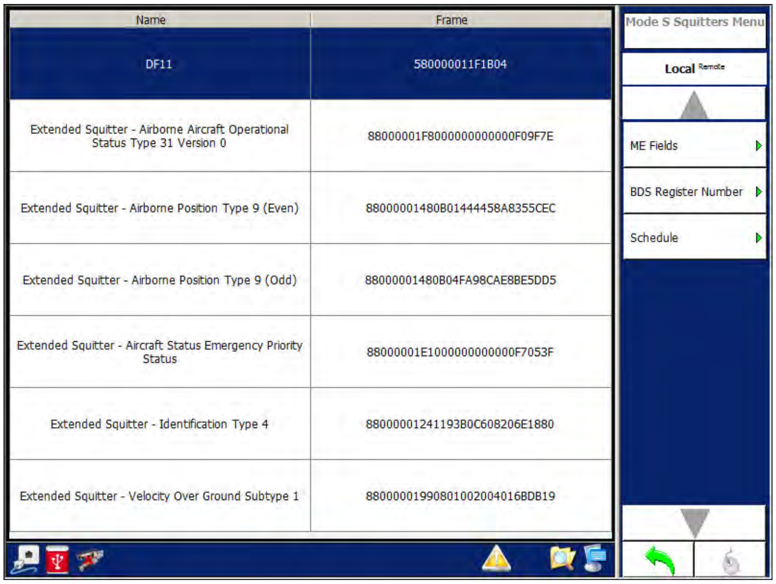



**Figure 1.2.3 - 57 TCAS Static Mode Extended Mode S Squitter Screen/Menu**

| Screen Components | Description |
|---|---|
| **ME Fields Softkey** | Accesses the ME Fields Screen. Refer to Section 3.4.21.8.1.1, TCAS Static Mode S Extended Mode S Squitter - ME Fields. |
| **BDS Register Number Softkey** | Accesses the BDS Register Number Screen. Refer to Section 3.4.21.8.1.2, TCAS Static Mode S Extended Mode S Squitter - BDS Register Number. |
| **Schedule Softkey** | Accesses the Squitter Schedule Screen. Refer to Section 3.4.21.8.1.4, TCAS Mode S Extended Mode S Squitter - Schedule Screen. |

#### 3.4.21.8.1.1 TCAS Static Mode S Extended Mode S Squitter - ME Fields

This screen accesses ME Field details for the selected squitter.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: Mode S Extended > Mode S Squitters Softkey > Action: Select Row > ME Fields Softkey

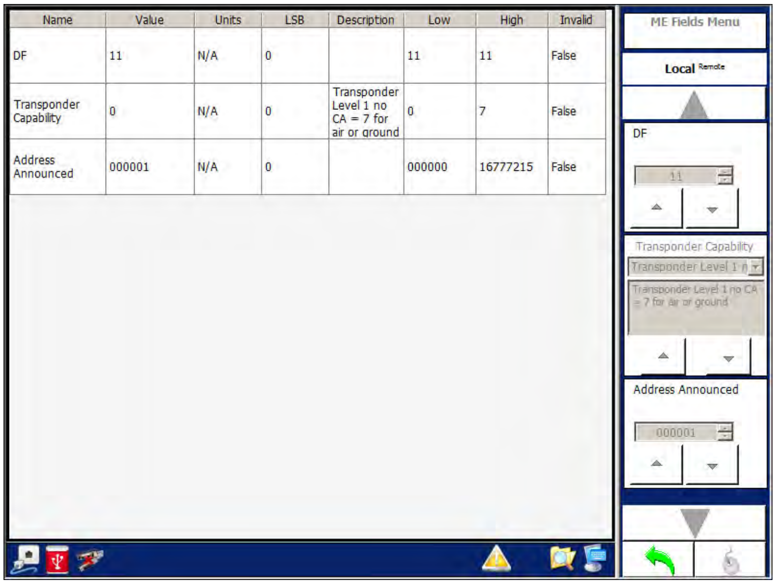



**Figure 1.2.3 - 58 TCAS Static Mode Extended Mode S Squitter - ME Fields Screen**

| Screen Components | Description |
|---|---|
| **DF Field** | Defines the DF value. |
| **Transponder Capability Menu** | Selects the Transponder Capability. |
| **Address Announced Field** | Defines the Address Announced. |

#### 3.4.21.8.1.2 TCAS Static Mode S Extended Mode S Squitter - BDS Register Number

This screen is used to configure Squitter BDS Register Numbers. Fields on the Softkey Menu are used to configure parameters when a new BDS Register Number is added to the table.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: Mode S Extended > Mode S Squitters Softkey > Action: Select Row > BDS Register Number Softkey


**Figure 1.2.3 - 59 BDS Register Number**

| Screen Components | Description |
|---|---|
| **Add Softkey** | Allows the user to add a new register. |
| **Remove Softkey** | Allows the user to remove the selected register. |
| **Register Name Field** | This menu is enabled when the Add Softkey is pressed. The menu selects the Register Name assigned to the BDS Register. |
| **Register Number Field** | Defines the Register Number. |
| **MV Fields Softkey** | Accesses the MV Fields Screen. Refer to Section 3.4.21.8.1.3, TCAS Mode S Extended Mode S Squitter - MV Fields Screen . |

### 3.4.21.8.1.3 TCAS Mode S Extended Mode S Squitter - MV Fields Screen

This screen accesses MV Field details when adding a new BDS Register Number.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: Mode S Extended > Mode S Squitters Softkey > Action: Select Row > BDS Register Number Softkey > Action: Select Row > MV Fields Softkey

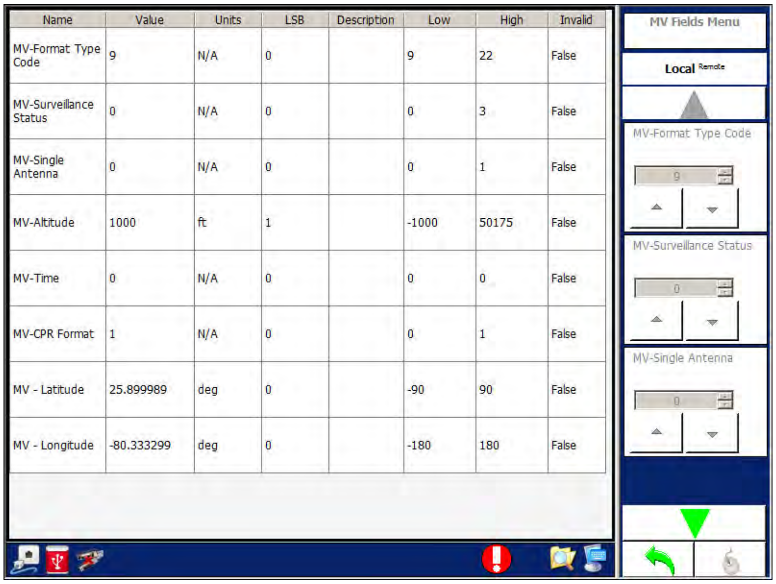



**Figure 1.2.3 - 60 TCAS Mode S Squitter - MV Fields Screen/Menu**

| Screen Components | Description |
|---|---|
| **Format Type Code Field** | Defines the Format Type Code. |
| **Surveillance Status Field** | Defines the Surveillance Status. |
| **Single Antenna Flag Field** | Defines the Single Antenna Flag. |
| **Altitude Field** | Allows the user to set the Altitude to Invalid/No Data. |
| **Time Bit Field** | Defines the Time Bit. |
| **CPR Format Field** | Defines the CPR Format. |
| **Latitude Field** | Defines the Latitude. |
| **Longitude Field** | Defines the Longitude. |

#### 3.4.21.8.1.4 TCAS Mode S Extended Mode S Squitter - Schedule Screen

This screen accesses Schedule details for the selected squitter.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: Mode S Extended > Mode S Squitters Softkey > BDS Register Number Softkey > Squitter Schedule Softkey

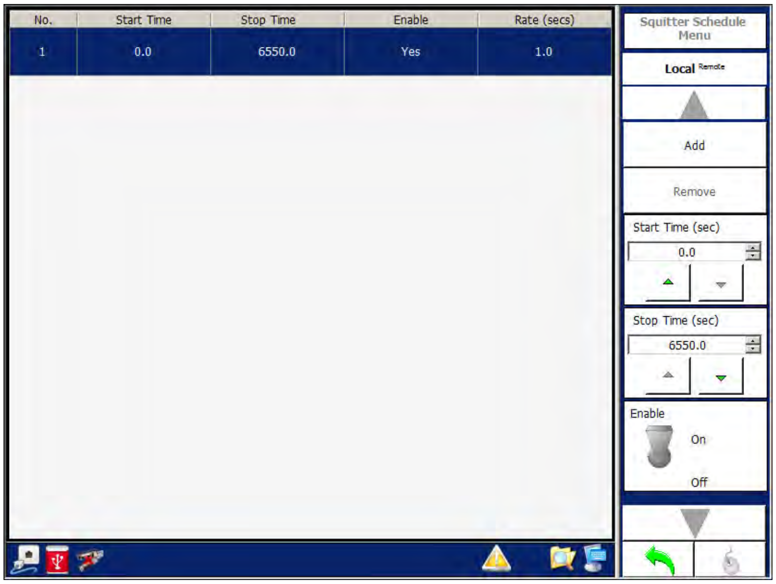



**Figure 1.2.3 - 61 TCAS Mode S Squitter - Squitter Schedule Screen/Menu**

| Screen Components | Description |
|---|---|
| **Add Softkey** | Allows the user to add a new squitter. |
| **Remove Softkey** | Allows the user to remove the selected squitter. |
| **Start Time Field** | Allows the user to select the Start Time. |
| **Stop Time Field** | Allows the user to select the Stop Time. |
| **Enable Toggle Switch** | Enables/disables the selected squitter. |

### 3.4.21.8.2 TCAS Mode S Extended Coordinations Screen

This screen is similar to the TCAS Static Mode S Coordinations Screen. Refer to Section 3.4.21.2, TCAS Intruders Static Mode S Coordinations Message Screen for a description of this screen.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: Mode S Extended > Coordinations Softkey

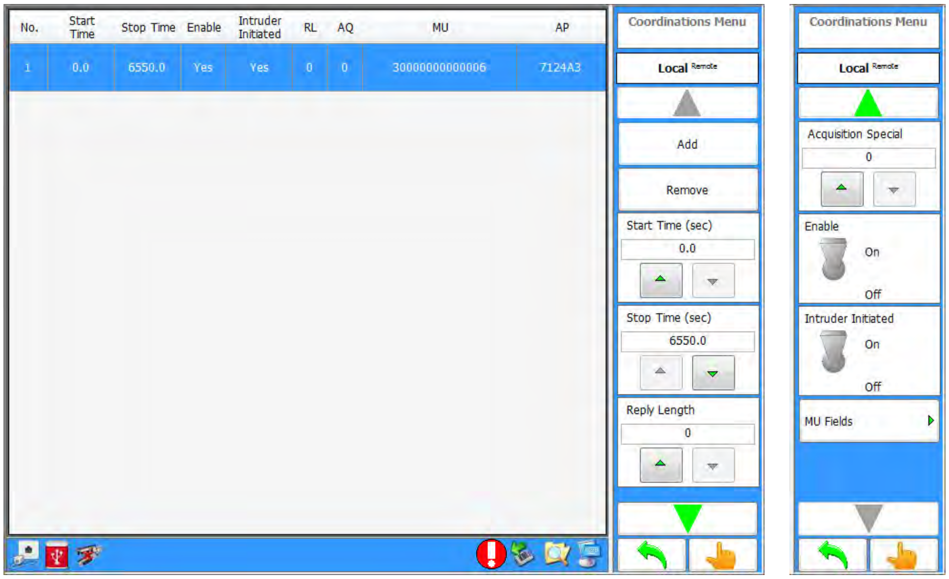



**Figure 1.2.3 - 62 TCAS Mode S Extended Coordinations Screen/Menus**

### 3.4.21.8.3 TCAS Mode S Extended Broadcasts Screen

This screen is similar to the TCAS Static Mode S Broadcasts Screen. Refer to Section 3.4.21.3, TCAS Intruders Static Mode S Broadcast Message Screen for a description of this screen.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: Mode S Extended > Broadcasts Softkey

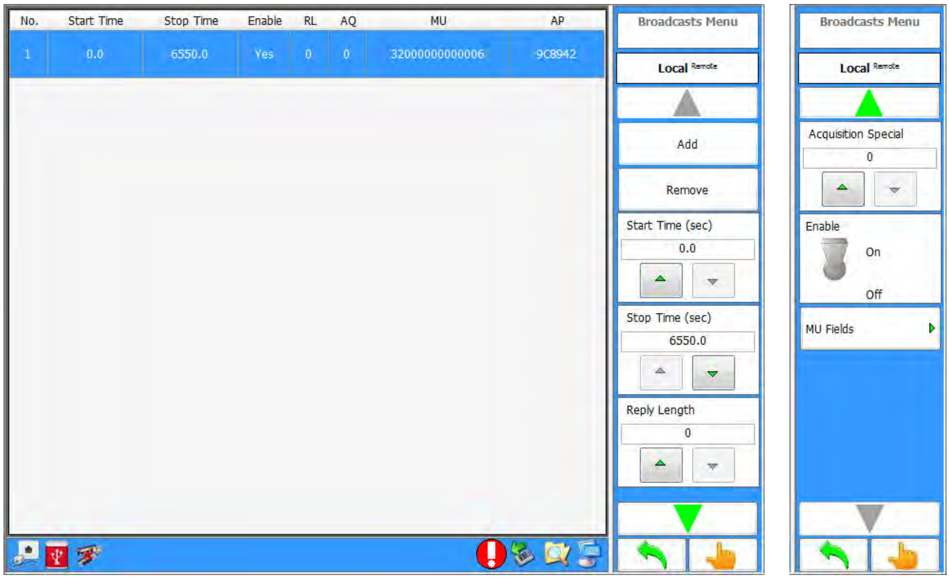



**Figure 1.2.3 - 63 TCAS Mode S Extended Broadcasts Screen**

### 3.4.21.8.4 TCAS Mode S Extended DF16 Replies Screen

This screen is similar to the TCAS Static Mode S DF16 Replies Screen. Refer to Section 3.4.21.3.2, TCAS Intruders Static Mode S DF16 Replies Screen for a description of this screen.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: Mode S Extended > DF16 Replies Softkey

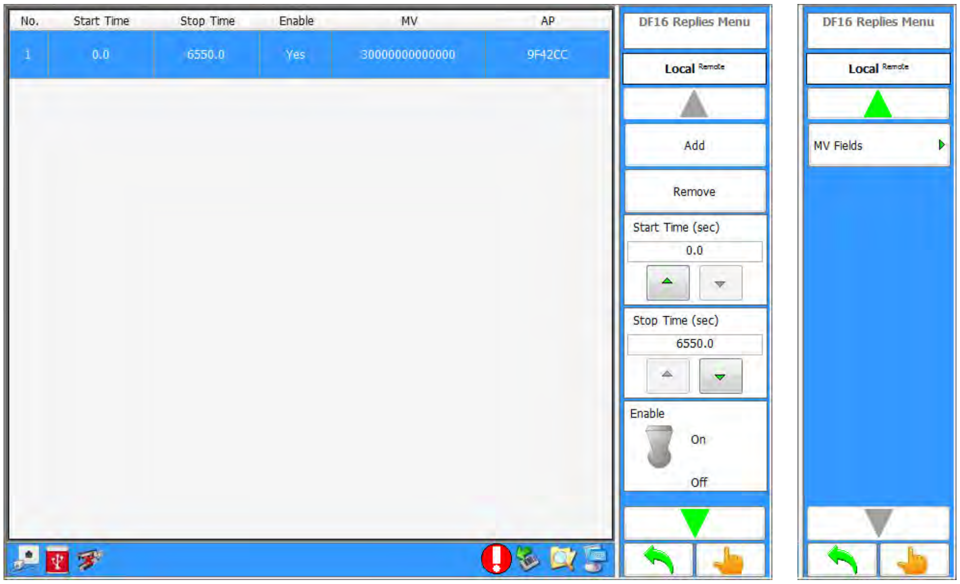



**Figure 1.2.3 - 64 TCAS Mode S Extended DF16 Replies Screen**

### 3.4.21.8.5 TCAS Mode S Extended UFO's Screen

This screen is similar to the TCAS Static Mode S UFO's Screen. Refer to Section 3.4.21.3.4, TCAS Intruders Static Mode S UF0's Screen for a description of this screen.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Static > Mode: Mode S Extended > UFO's Softkey

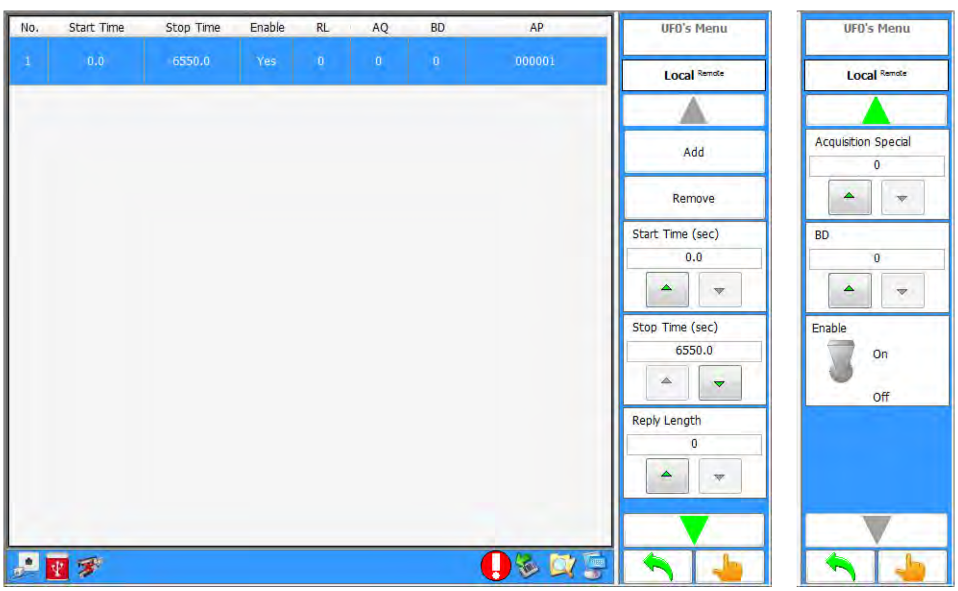



**Figure 1.2.3 - 65 TCAS Mode S Extended UFO's Screen**

### 3.4.21.9 TCAS Intruders Dynamic Mode S TCAS Only Screen

Allows the user to define all the parameters for a Dynamic Mode S intruder.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Dynamic > Mode: Mode S TCAS Only

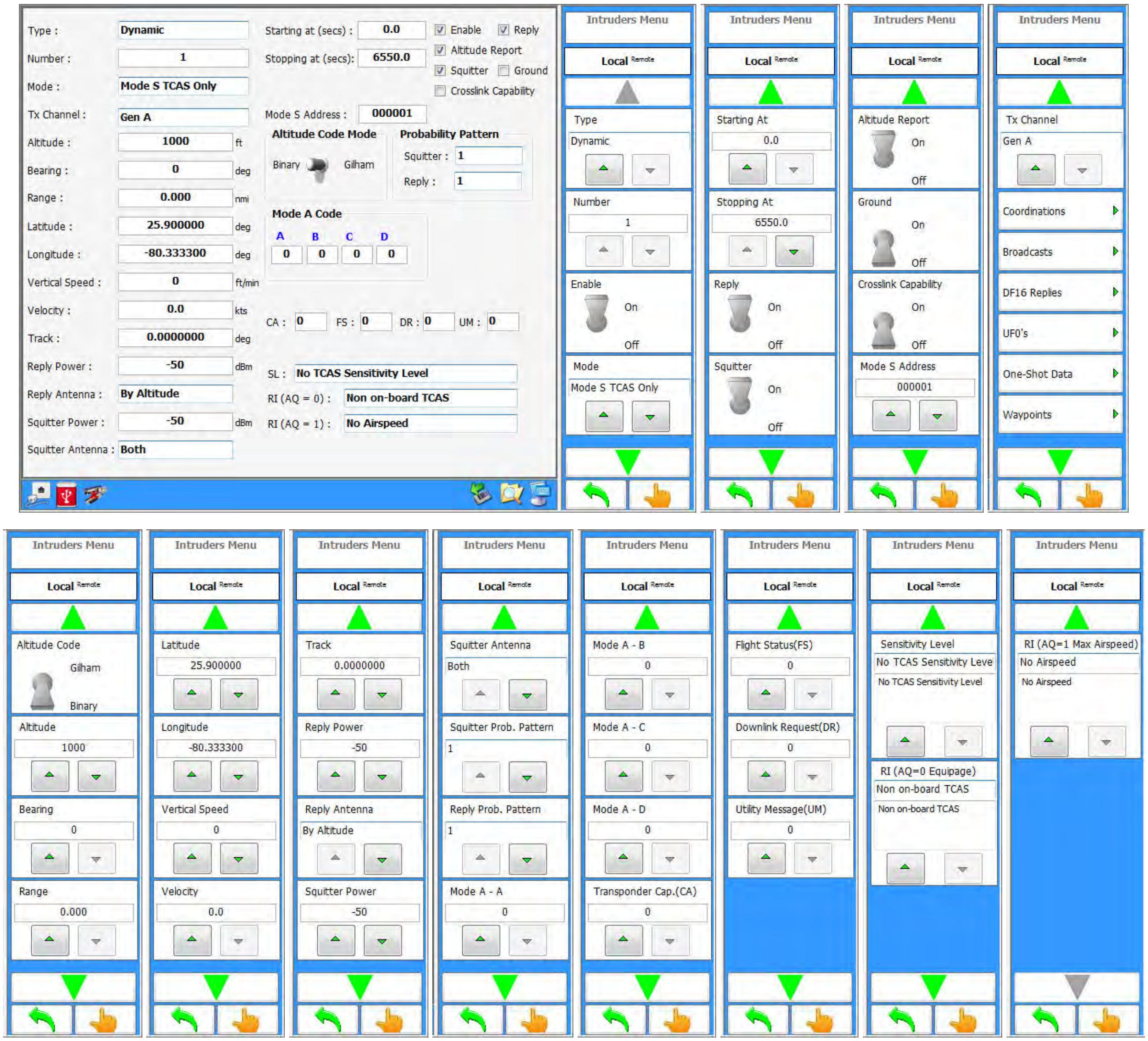



**Figure 1.2.3 - 66 TCAS Scenario Intruders Dynamic Mode S TCAS Only Screen/Menu**

| Screen Components | Description |
|---|---|
| **Type Menu** | Defines the Type. |
| **Number Field** | Defines the number of intruders in the scenario. |
| **Mode Menu** | Defines the Mode. |

| Screen Components | Description |
|---|---|
| **Tx Channel Menu** | Selects the Tx Channel. Tx Channels are defined on the TCAS Settings user Screen. Refer to Section 3.4.1, TCAS Settings Screen. |
| **Altitude Field** | Defines the Altitude. |
| **Bearing (Phase) Field** | Defines the Bearing (Phase). |
| **Range Field** | Defines the Range. |
| **Latitude Field** | Defines the Latitude. |
| **Longitude Field** | Defines the Longitude. |
| **Vertical Speed Field** | Defines the Vertical Speed. |
| **Velocity Field** | Defines the Velocity (Squitter). |
| **Track Field** | Defines the Track Angle. |
| **Reply Power Field** | Defines the Reply Power. |
| **Reply Antenna Menu** | Selects the Reply Antenna. |
| **Squitter Power** | Defines the Squitter Power. |
| **Squitter Antenna Menu** | Selects the Squitter Antenna. |
| **Starting at Field** | Defines the start time. |
| **Stopping at Field** | Defines the stop time. |
| **Mode S Address Field** | Defines the Mode S Address (Hexadecimal). |
| **Enable** | Enables/disables transmitting the required messages for this intruder. |
| **Reply** | Enables/disables the Reply. |
| **Altitude Report** | Enables/disables the Altitude Report.<br>If enabled, the altitude code is present in the DF0 reply.<br>If disabled, the altitude code is set to 0. |
| **Squitter** | Enables/disables the Squitter. |
| **Ground** | Enables/disables setting the intruder on the ground. |
| **Crosslink Capability** | Enables/disables the Crosslink Capability |
| **Altitude Code Mode** | Defines the Altitude Code Mode. |
| **Probability Pattern** | |
| Squitter Field | Defines the Squitter Probability Pattern. |
| Reply Field | Defines the Reply Probability Pattern. |
| **Vertical Velocity Field** | Defines the Vertical Velocity. |
| **Mode A Code Field** | Defines the Mode A Code. |
| **CA Field** | Defines the Transponder Capability. |

| Screen Components | Description |
|---|---|
| **FS Field** | Defines the Flight Status. |
| **DR Field** | Defines the Downlink Request. |
| **UM Field** | Defines the Utility Message. |
| **SL Menu** | Selects the Sensitivity Level. |
| **RI (AQ = 0) Menu** | Selects the Runway Incursion (Acquisition = 0). |
| **RI (AQ = 1) Menu** | Selects the Runway Incursion (Acquisition = 1). |
| **Coordinations Softkey** | Accesses the Coordinations Screen. Refer to Section 3.4.21.9.1, TCAS Dynamic Mode S TCAS Only Coordinations Screen. |
| **Broadcasts Softkey** | Accesses the Broadcasts Screen. Refer to Section 3.4.21.9.2, TCAS Dynamic Mode S TCAS Only Broadcasts Screen. |
| **DF16 Replies Softkey** | Accesses the DF-16 Replies Screen. Refer to Section 3.4.21.9.3, TCAS Dynamic Mode S TCAS Only DF16 Replies Screen. |
| **UF0's Softkey** | Accesses the UF0's Screen. Refer to Section 3.4.21.9.4, TCAS Dynamic Mode S TCAS Only UFO's Screen. |
| **One Shot Data Softkey** | Accesses the One Shot Data Screen. Refer to Section 3.4.21.9.5, TCAS Dynamic Mode S TCAS Only One-Shot Data Screen. |
| **Waypoints Softkey** | Accesses the Waypoints Screen. Refer to Section 3.4.21.9.6, TCAS Intruders Dynamic Mode S Waypoints Screen . |

### 3.4.21.9.1 TCAS Dynamic Mode S TCAS Only Coordinations Screen

This screen is similar to the TCAS Dynamic Mode S Coordinations Screen. Refer to Section 3.4.21.2, TCAS Intruders Static Mode S Coordinations Message Screen for a description of this screen.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Dynamic > Mode: Mode S TCAS Only > Coordinations Softkey

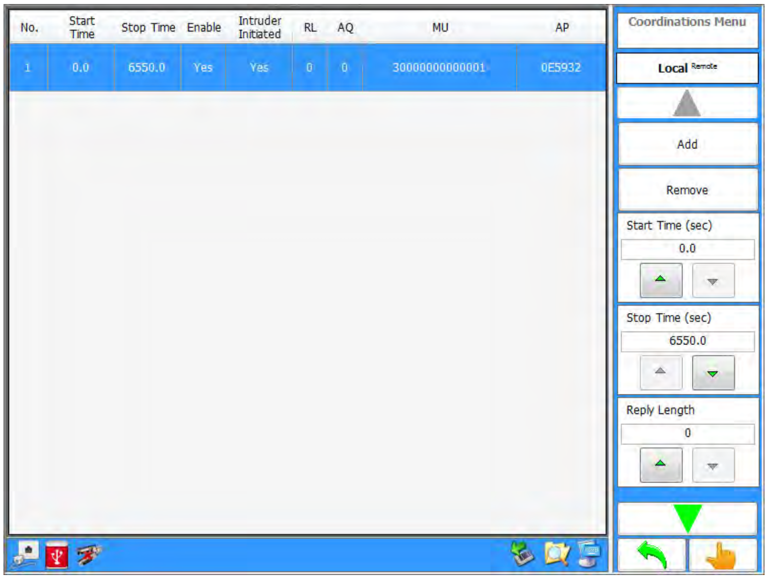



**Figure 1.2.3 - 67 Dynamic Mode S TCAS Only Coordinations Screen**

#### 3.4.21.9.2 TCAS Dynamic Mode S TCAS Only Broadcasts Screen

This screen is similar to the TCAS Dynamic Mode S Broadcasts Screen. Refer to Section 3.4.21.3, TCAS Intruders Static Mode S Broadcast Message Screen for a description of this screen.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Dynamic > Mode: Mode S TCAS Only > Broadcasts Softkey

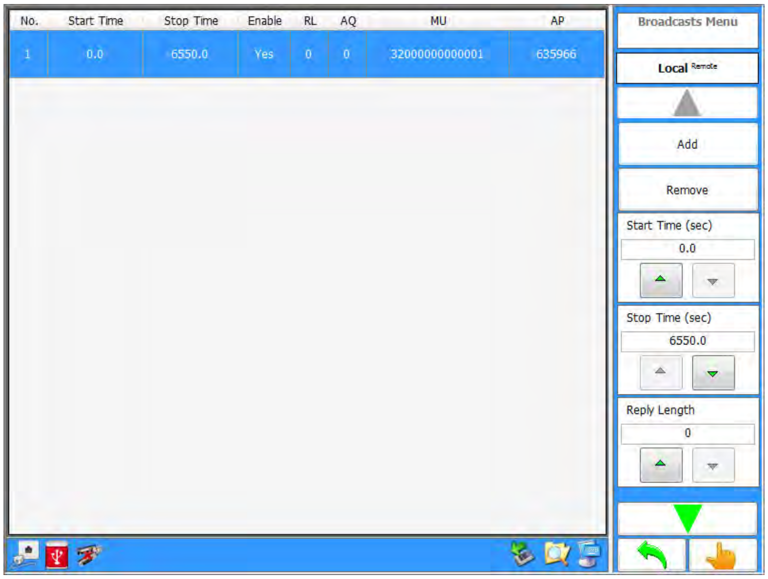



**Figure 1.2.3 - 68 Dynamic Mode S TCAS Only Broadcasts Screen**

### 3.4.21.9.3 TCAS Dynamic Mode S TCAS Only DF16 Replies Screen

This screen is similar to the TCAS Dynamic Mode S DF16 Replies Screen. Refer to Section 3.4.21.3.2, TCAS Intruders Static Mode S DF16 Replies Screen for a description of this screen.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Dynamic > Mode: Mode S TCAS Only > DF16 Replies Softkey

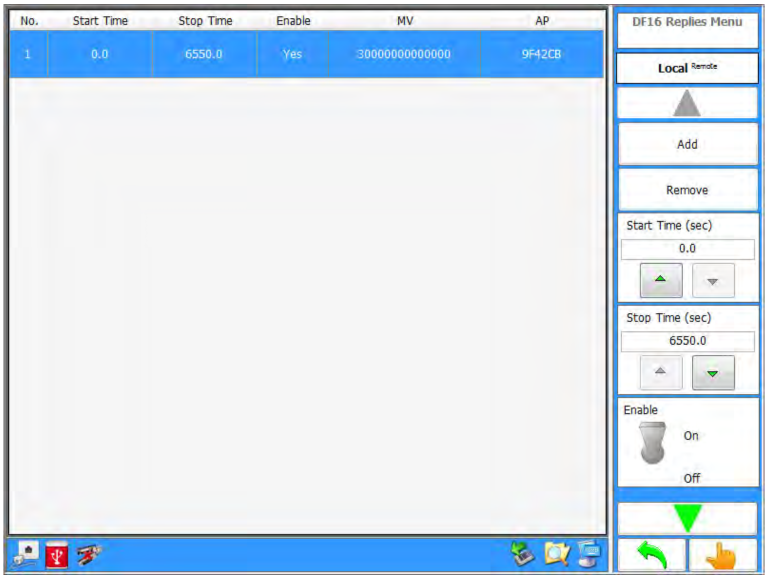



**Figure 1.2.3 - 69 Dynamic Mode S TCAS Only DF16 Replies Screen**

### 3.4.21.9.4 TCAS Dynamic Mode S TCAS Only UFO's Screen

This screen is similar to the TCAS Dynamic Mode S UFO's Screen. Refer to Section 3.4.21.3.4, TCAS Intruders Static Mode S UF0's Screen for a description of this screen.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Dynamic > Mode: Mode: Mode S TCAS Only > UFO's Softkey

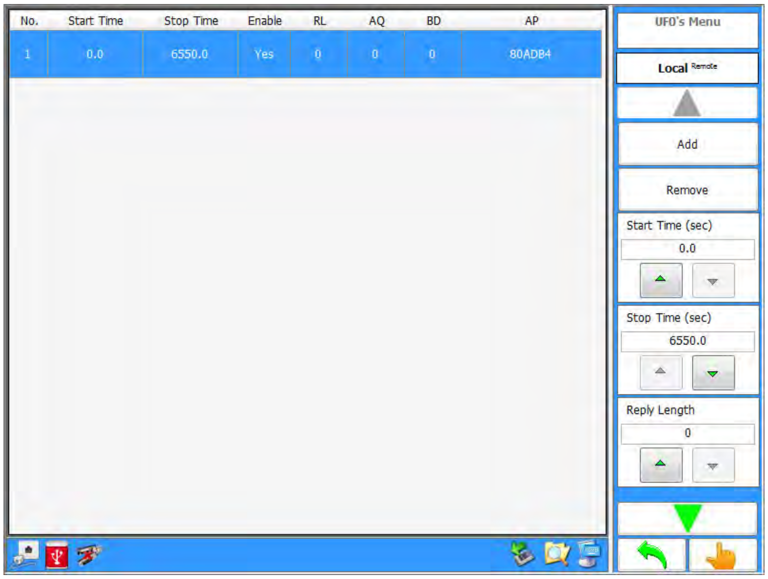



**Figure 1.2.3 - 70 Dynamic Mode S TCAS Only UFO's Screen**

### 3.4.21.9.5 TCAS Dynamic Mode S TCAS Only One-Shot Data Screen

This screen is similar to the TCAS Dynamic Mode S UFO's One-Shot Data Screen. Refer to Section 3.4.21.3.5, TCAS Intruders Static Mode S One-Shot Data Screen for a description of this screen.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Dynamic > Mode: Mode S TCAS Only > One-Shot Data Softkey

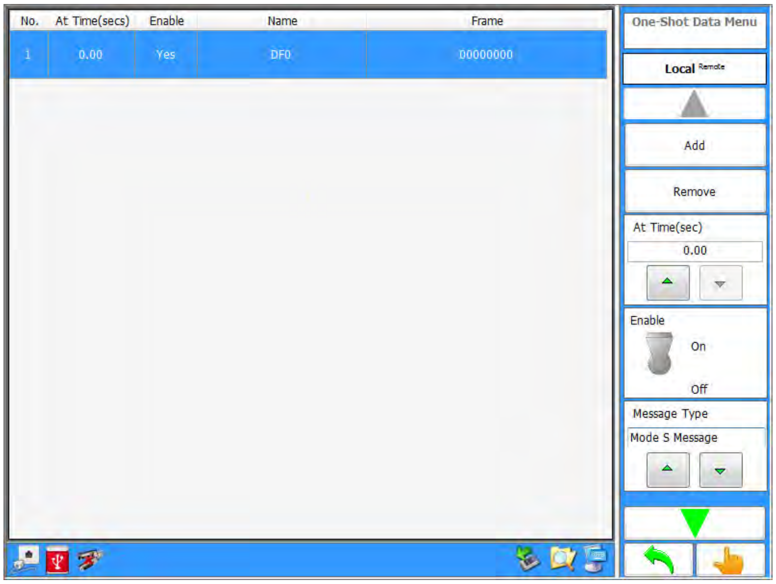



**Figure 1.2.3 - 71 TCAS Dynamic Mode S TCAS Only One-Shot Data Screen**

### 3.4.21.9.6 TCAS Intruders Dynamic Mode S Waypoints Screen

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Dynamic > Mode: Mode S TCAS Only > Waypoints Softkey

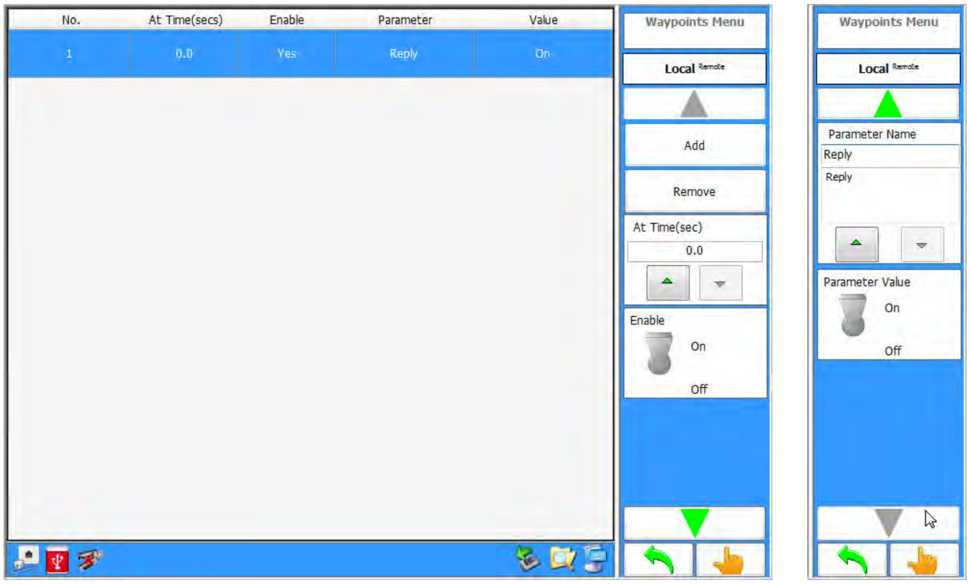



**Figure 1.2.3 - 72 TCAS Intruders Dynamic Mode S Waypoints Screen/Menu**

### 3.4.21.10 TCAS Intruders Dynamic TIS-B Only Screen

Allows the user to define all the parameters for a dynamic TIS-B (DF18) intruder.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Dynamic > Mode: TIS-B Only

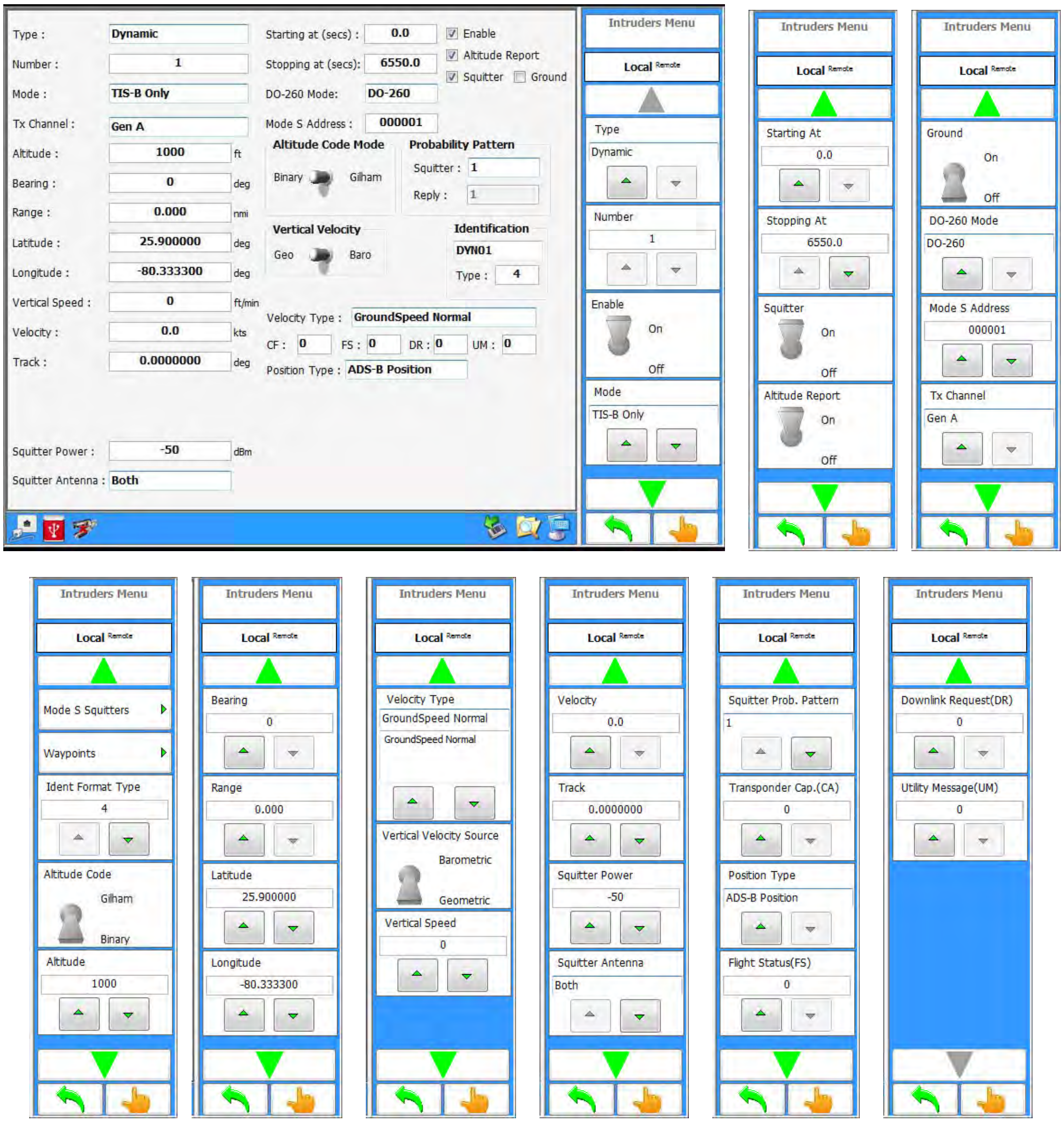



**Figure 1.2.3 - 73 TCAS Dynamic TIS-B Only Definitions**

| Screen Components | Description |
|---|---|
| **Type Menu** | Selects the Type. |
| **Number Field** | Defines the Number of intruders in the scenario. |
| **Mode Menu** | Selects the Mode. |

| Screen Components | Description |
|---|---|
| **Tx Channel Menu** | Selects the Tx Channel. Tx Channels are defined on the TCAS Settings user Screen. Refer to Section 3.4.1, TCAS Settings Screen. |
| **Altitude Field** | Defines the Altitude. |
| **Bearing (Phase) Field** | Defines the Bearing (Phase). |
| **Range Field** | Defines the Range. |
| **Latitude Field** | Defines the Latitude. |
| **Longitude Field** | Defines the Longitude. |
| **Vertical Speed Field** | Defines the Vertical Speed. |
| **Velocity Field** | Defines the Velocity (Squitter). |
| **Track Field** | Defines the Track Angle. |
| **Squitter Power Field** | Defines the Squitter Power. |
| **Squitter Antenna Menu** | Selects the Squitter Antenna. |
| **Starting at Field** | Defines the start time. |
| **Stopping at Field** | Defines the stop time. |
| **DO-260 Mode Menu** | Selects the DO-260 Mode. |
| **Mode S Address Field** | Defines the Mode S Address (Hexadecimal). |
| **Enable** | Enables/disables transmitting the required messages for this intruder. |
| **Altitude Report** | Enables/disables the Altitude Report.<br>If enabled, the altitude code is present in the DF0 reply.<br>If disabled, the altitude code is set to 0. |
| **Squitter** | Enables/disables the Squitter. |
| **Ground** | Enables/disables setting the intruder on the ground. |
| **Altitude Code Mode Toggle Switch** | Selects the Altitude Code Mode. |
| **Probability Pattern** | |
| Squitter Field | Defines the Squitter Probability Pattern. |
| Reply Field | Defines the Reply Probability Pattern. |
| **Vertical Velocity Toggle Switch** | Selects the Vertical Velocity. |
| **Identification Field** | Defines the Intruder Identification. |
| **Type Field** | Defines the Intruder Identification Type. |
| **Velocity Type Menu** | Selects the Velocity Type. |
| **CF Field** | Defines the Transponder Capability. |
| **FS Field** | Defines the Flight Status. |

| Screen Components | Description |
|---|---|
| **DR Field** | Defines the Downlink Request. |
| **UM Field** | Defines the Utility Message. |
| **Position Type Menu** | Selects the Position Type (Squitter). |
| **Mode S Squitter Soft Key** | Accesses the Mode S Squitter Screen. |
| **Waypoints Soft Key** | Accesses the Waypoints Screen. |

#### 3.4.21.10.1 TCAS Intruders Dynamic TIS-B Only Mode S Squitter Screen

This screen is similar to the TCAS Static Mode TIS-B Only Mode S Squitter Screen.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Dynamic > Mode: TIS-B Only > Mode S Squitters Softkey

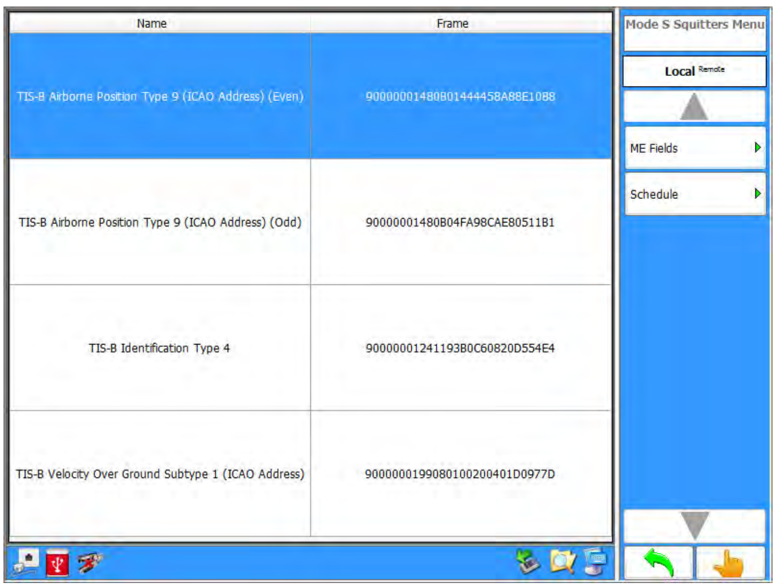



**Figure 1.2.3 - 74 TCAS Intruders Dynamic TIS-B Only Mode S Squitter Screen**

### 3.4.21.10.2 TCAS Intruders Dynamic TIS-B Only Waypoints Screen

This screen is similar to the TCAS Static Mode TIS-B Only Mode S Squitter Screen. Refer to Section 3.4.21.9.6, TCAS Intruders Dynamic Mode S Waypoints Screen for a description of this screen.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Dynamic > Mode: TIS-B Only > Waypoints Softkey

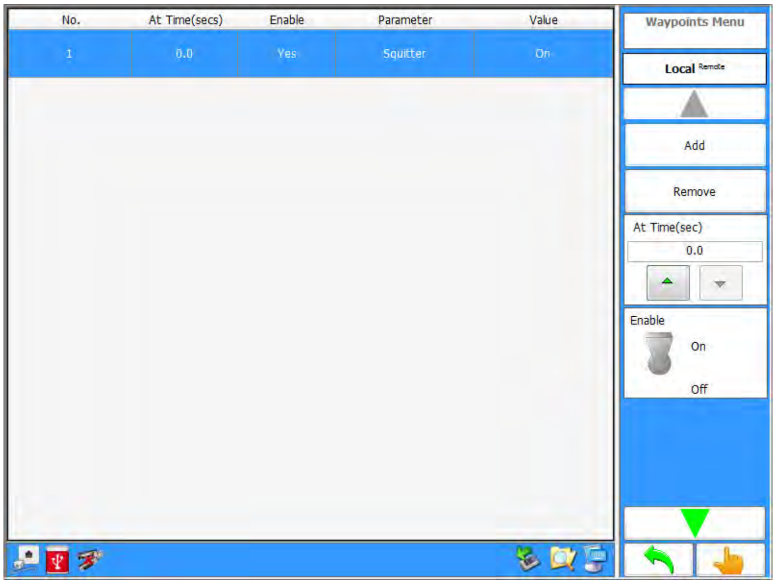



**Figure 1.2.3 - 75 TCAS Intruders Dynamic TIS-B Only Waypoints Screen**

### 3.4.21.11 TCAS Intruders Dynamic ADS-R Screen

Allows the user to define all the parameters for a dynamic ADS-R (DF18) intruder.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Dynamic > Mode: ADS-R

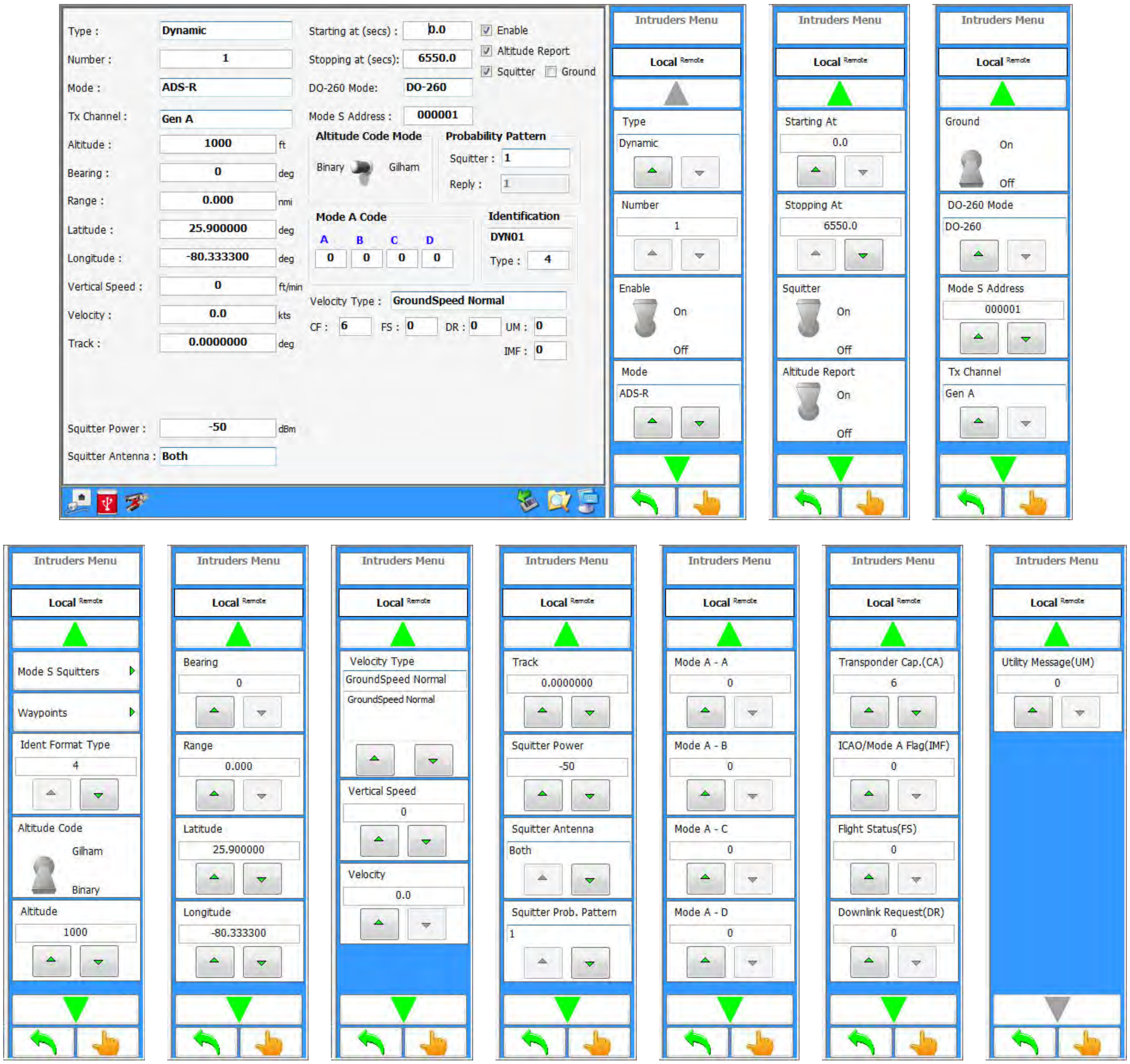


**Figure 1.2.3 - 76 TCAS Dynamic ADS-R Screen/Menu**

| Screen Components | Description |
|---|---|
| **Type Menu** | Selects the Type. |
| **Number Field** | Defines the Number of intruders in the scenario. |
| **Mode Menu** | Selects the Mode. |

| Screen Components | Description |
|---|---|
| **Tx Channel Menu** | Selects the Tx Channel. Tx Channels are defined on the TCAS Settings user Screen. Refer to Section 3.4.1, TCAS Settings Screen. |
| **Altitude Field** | Defines the Altitude. |
| **Bearing (Phase) Field** | Defines the Bearing (Phase). |
| **Range Field** | Defines the Range. |
| **Latitude Field** | Defines the Latitude. |
| **Longitude Field** | Defines the Longitude. |
| **Vertical Speed Field** | Defines the Vertical Speed. |
| **Velocity Field** | Defines the Velocity (Squitter). |
| **Track Field** | Defines the Track Angle. |
| **Squitter Power Field** | Defines the Squitter Power. |
| **Squitter Antenna Menu** | Selects the Squitter Antenna. |
| **Starting at Field** | Defines the start time. |
| **Stopping at Field** | Defines the stop time. |
| **DO-260 Mode Menu** | Selects the DO-260 Mode. |
| **Mode S Address Field** | Defines the Mode S Address (Hexadecimal). |
| **Enable** | Enables/disables transmitting the required messages for this intruder. |
| **Altitude Report** | Enables/disables the Altitude Report.<br>If enabled, the altitude code is present in the DF0 reply.<br>If disabled, the altitude code is set to 0. |
| **Squitter** | Enables/disables the Squitter. |
| **Ground** | Enables/disables setting the intruder on the ground. |
| **Altitude Code Mode Toggle Switch** | Selects the Altitude Code Mode. |
| **Probability Pattern** | |
| Squitter Field | Defines the Squitter Probability Pattern. |
| Reply Field | Defines the Reply Probability Pattern. |
| **Mode A Code Fields** | Defines the Mode A Code. |
| **Identification Field** | Defines the Intruder Identification. |
| **Type Field** | Defines the Intruder Identification Type. |
| **Velocity Type Menu** | Selects the Velocity Type. |
| **CF Field** | Defines the Transponder Capability. |
| **FS Field** | Defines the Flight Status. |

| Screen Components | Description |
|---|---|
| **DR Field** | Defines the Downlink Request. |
| **UM Field** | Defines the Utility Message. |
| **IMF** | Defines the Interrupt Master Enable Flag. |
| **Position Type Menu** | Selects the Position Type (Squitter). |
| **Mode S Squitter Soft Key** | Accesses the Mode S Squitter Screen. |
| **Waypoints Soft Key** | Accesses the Waypoints Screen. |

### 3.4.21.11.1 TCAS Dynamic ADS-R Mode S Squitter Screen

This screen is similar to the TCAS Static Mode TIS-B Only Mode S Squitter Screen.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Dynamic > Mode: ADS-R > Mode S Squitters Softkey

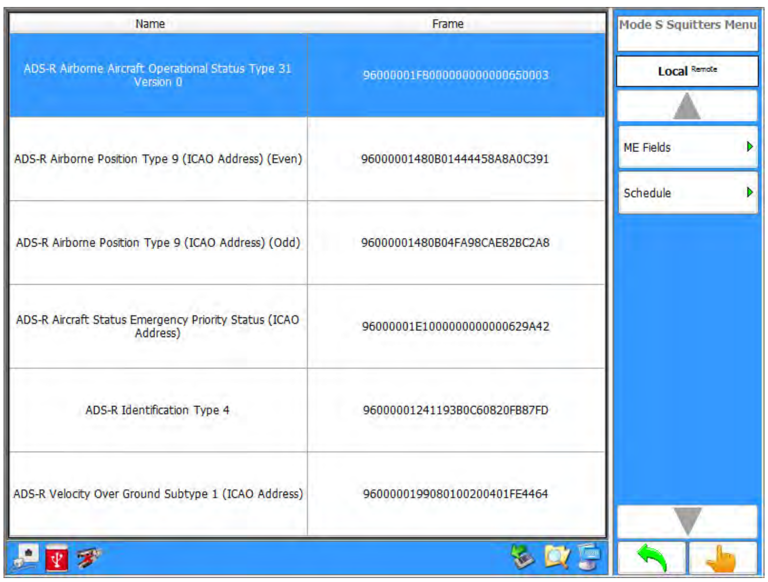



**Figure 1.2.3 - 77 Dynamic ADS-R Mode S Squitter Screen**

### 3.4.21.11.2 TCAS Dynamic ADS-R Waypoints Screen

This screen is similar to the TCAS Static Mode TIS-B Only Mode S Squitter Screen. Refer to Section 3.4.21.9.6, TCAS Intruders Dynamic Mode S Waypoints Screen for a description of this screen.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Dynamic > Mode: ADS-R > Waypoints Softkey

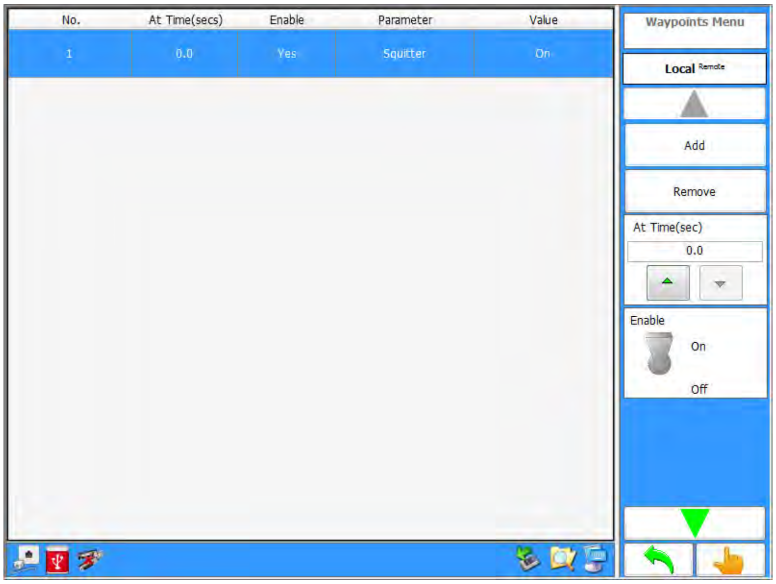



**Figure 1.2.3 - 78 Dynamic ADS-R Waypoints Screen**

### 3.4.21.12 TCAS Intruders Dynamic Mode C Screen

Allows the user to define all the parameters for a Dynamic Mode C intruder.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Dynamic > Mode: Mode C

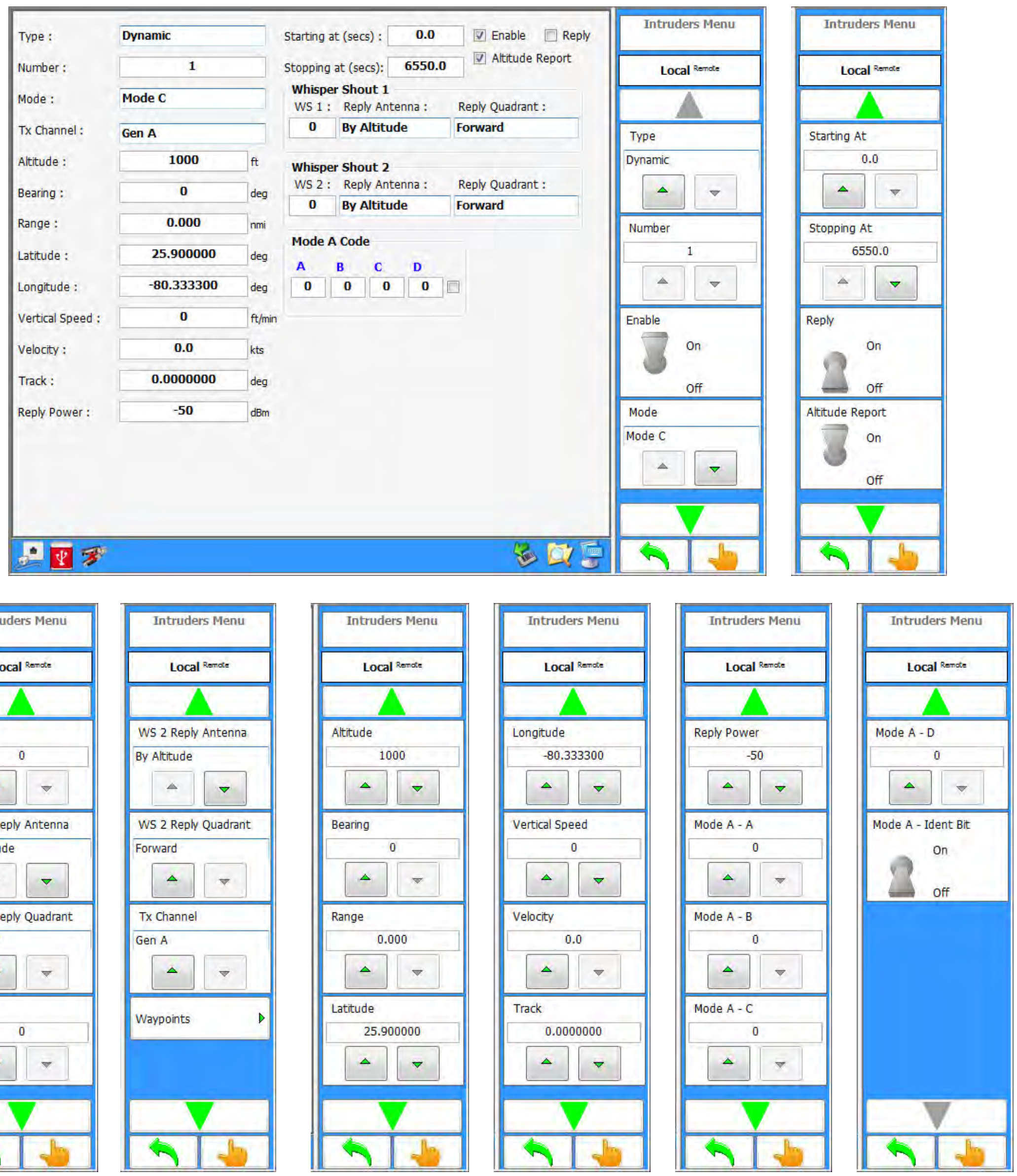



**Figure 1.2.3 - 79 TCAS Intruders Dynamic Mode C Screen/Menu**

| Screen Components | Description |
|---|---|
| **Type Menu** | Selects the Type. |
| **Number Field** | Sets the Number. |
| **Mode Menu** | Selects the Mode. |

| Screen Components | Description |
|---|---|
| **Tx Channel Menu** | Selects the Tx Channel. Tx Channels are defined on the TCAS Settings user Screen. Refer to Section 3.4.1, TCAS Settings Screen. |
| **Altitude Field** | Defines the Altitude. |
| **Bearing (Phase) Field** | Defines the Bearing (Phase). |
| **Range Field** | Defines the Range. |
| **Latitude Field** | Defines the Latitude. |
| **Longitude Field** | Defines the Longitude. |
| **Vertical Speed Field** | Defines the Vertical Speed. |
| **Velocity Field** | Defines the Velocity. |
| **Track Field** | Defines the Track Angle. |
| **Reply Power Field** | Selects the Reply Power. |
| **Starting at Field** | Selects the start time. |
| **Stopping at Field** | Selects the stop time. |
| **Enable (Transmit)** | Enables/disables transmitting the required messages for this intruder. |
| **Reply** | Enables/disables the Reply. |
| **Altitude Report** | Enables/disables the Altitude Report.<br>If enabled, the altitude code pulses are transmitted with the framing pulses.<br>If disabled, only the framing pulses are transmitted. |
| **Whisper Shout 1** | |
| WS 1 | Defines the Whisper Shout 1 Level. |
| Reply Antenna Menu | Selects the Whisper Shout 1 Reply Antenna. |
| Reply Quadrant Menu | Selects the Whisper Shout 1 Reply Quadrant. |
| **Whisper Shout 2** | |
| WS 2 | Defines the Whisper Shout 2 Level. |
| Reply Antenna Menu | Selects the Whisper Shout 2 Reply Antenna. |
| Reply Quadrant Menu | Selects the Whisper Shout 2 Reply Quadrant. |
| **Mode A Code Fields** | Define the Mode A Code. |
| **Waypoints Softkey** | Accesses the Waypoints Screen. Refer to Section 3.4.21.12.1, TCAS Intruders Dynamic Mode C Waypoints Screen for information. |

### 3.4.21.12.1 TCAS Intruders Dynamic Mode C Waypoints Screen

This screen is similar to the TCAS Static Mode TIS-B Only Mode S Squitter Screen. Refer to Section 3.4.21.9.6, TCAS Intruders Dynamic Mode S Waypoints Screen for a description of this screen.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Dynamic > Mode: Mode C > Waypoints Softkey

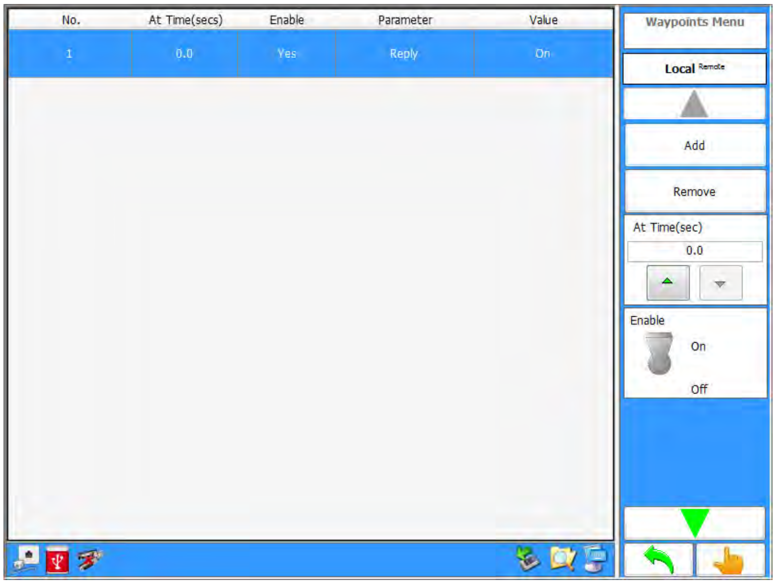



**Figure 1.2.3 - 80 TCAS Intruders Dynamic Mode C Waypoints Screen**

### 3.4.21.13 TCAS Intruders Dynamic Mode S Extended Screen

Allows the user to define all the parameters for a Dynamic Mode S Extended intruder.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Dynamic > Mode: Mode S Extended

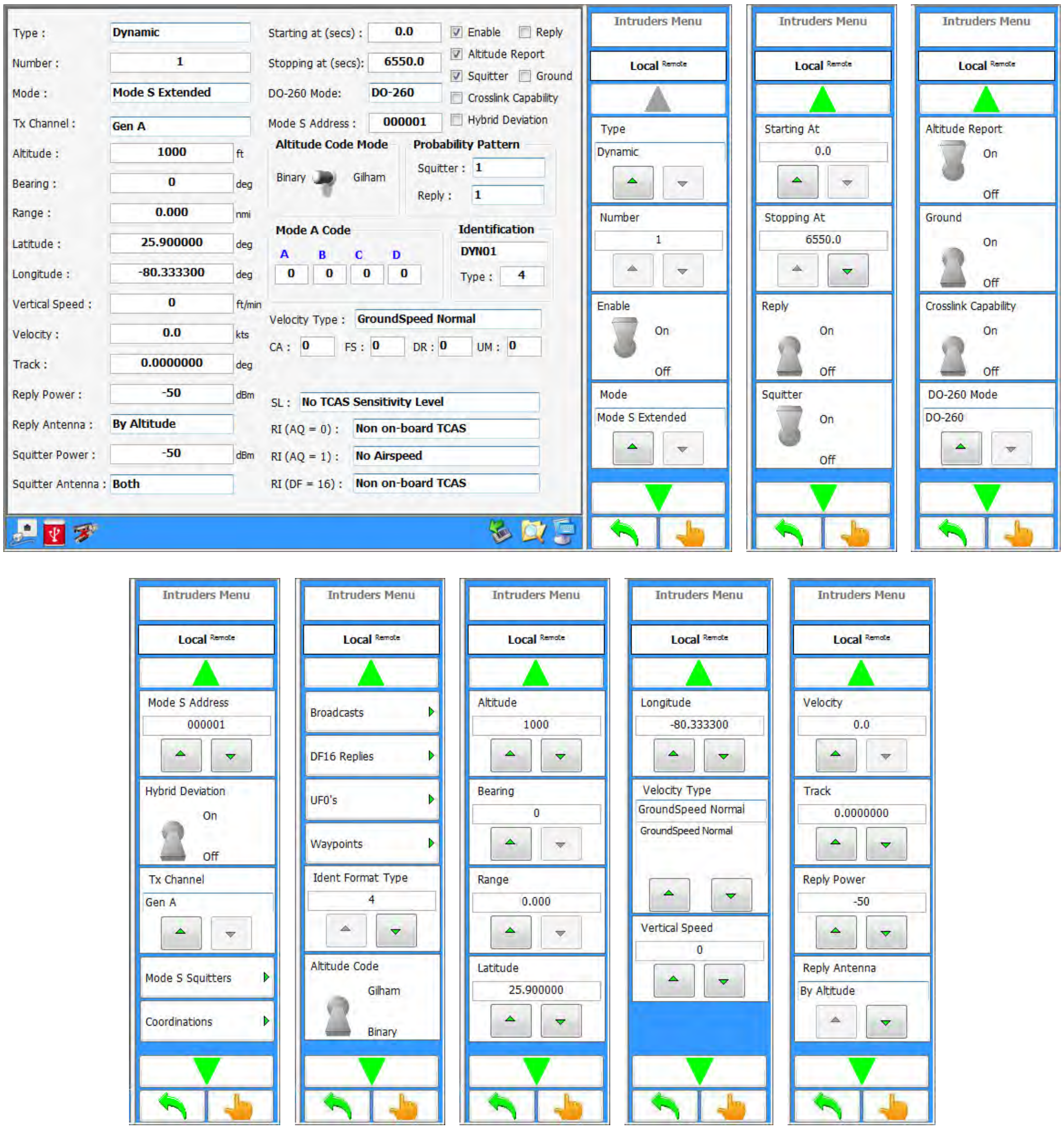



**Figure 1.2.3 - 81 TCAS Dynamic Mode S Extended Screen/Menu**

| Screen Components | Description |
|---|---|
| **Type Menu** | Selects the Type. |
| **Number Field** | Defines the Number. |
| **Mode Menu** | Defines the Mode. |
| **Tx Channel Menu** | Selects the Tx Channel. Tx Channels are defined on the TCAS Settings user Screen. Refer to Section 3.4.1, TCAS Settings Screen. |
| **Altitude Field** | Defines the Altitude (Gilham). |
| **Bearing (Phase) Field** | Defines the Bearing (Phase). |
| **Range Field** | Defines the Range. |
| **Latitude Field** | Defines the Latitude. |
| **Longitude Field** | Defines the Longitude. |
| **Vertical Speed Field** | Defines the Vertical Speed. |
| **Velocity Field** | Defines the Velocity (Squitter). |
| **Track Field** | Defines the Track Angle. |
| **Reply Power Field** | Defines the Reply Power. |
| **Reply Antenna Menu** | Selects the Reply Antenna. |
| **Squitter Power Field** | Defines the Squitter Power. |
| **Squitter Antenna Menu** | Selects the Squitter Antenna. |
| **Starting at Field** | Defines the start time. |
| **Stopping at Field** | Defines the stop time. |

| Screen Components | Description |
|---|---|
| **DO-260 Mode Menu** | Selects the DO-260 Mode. |
| **Mode S Address Field** | Defines the Mode S Address (Hexadecimal). |
| **Enable** | Enables/disables transmitting the required messages for this intruder. |
| **Reply** | Enables/disables the Reply. |
| **Altitude Report** | Enables/disables the Altitude Report.<br>If enabled, the altitude code is present in the DF0 reply.<br>If disabled, the altitude code is set to 0. |
| **Squitter** | Enables/disables the Squitter. |
| **Ground** | Enables/disables setting the intruder on the ground. |
| **Crosslink Capability** | Enables/disables the Crosslink Capability |
| **Hybrid Deviation** | Enables/disables the Hybrid Deviation.<br>If enabled, allows entry of range, bearing and altitude deviation values. |
| **Altitude Code Mode Toggle Switch** | Selects the Altitude Code Mode. |
| **Probability Pattern** | |
| Squitter Field | Defines the Squitter Probability Pattern. |
| Reply Field | Defines the Reply Probability Pattern. |
| **Mode A Code Fields** | Defines the Mode A Code. |
| **Identification Field** | Defines the Intruder Identification. |
| **Type Field** | Defines the Intruder Identification Type. |
| **Velocity Type Menu** | Selects the Velocity Type. |
| **CA Field** | Defines the Transponder Capability. |
| **FS Field** | Defines the Flight Status. |
| **DR Field** | Defines the Downlink Request. |
| **UM Field** | Defines the Utility Message. |
| **SL Menu** | Selects the Sensitivity Level. |
| **RI (AQ = 0) Menu** | Selects the Runway Incursion (Acquisition = 0). |
| **RI (AQ = 1) Menu** | Selects the Runway Incursion (Acquisition = 1). |
| **RI (DF = 16) Menu** | Selects the Runway Incursion (Direction Finding = 16). |
| **Mode S Squitters Softkey** | Accesses the Mode S Squitter Definition Screen. Refer to Section 3.4.21.8.1, TCAS Static Mode S Extended Mode S Squitter Screen. |
| **Coordinations Softkey** | Accesses the Coordinations Screen. Refer to Section 3.4.21.8.2, TCAS Mode S Extended Coordinations Screen. |
| **Broadcasts Softkey** | Accesses the Broadcasts Screen.Refer to Section 3.4.21.8.3, TCAS Mode S Extended Broadcasts Screen. |

| Screen Components | Description |
|---|---|
| **DF16 Replies Softkey** | Accesses the DF-16 Replies Screen.Refer to Section 3.4.21.8.4, TCAS Mode S Extended DF16 Replies Screen. |
| **UF0's Softkey** | Accesses the UF0's Screen.Refer to Section 3.4.21.8.5, TCAS Mode S Extended UFO's Screen. |

### 3.4.21.13.1 TCAS Dynamic Mode S Extended Squitters Screen

This screen is similar to the TCAS Static Mode S Squitters Screen. Refer to Section 3.4.21.8.1, TCAS Static Mode S Extended Mode S Squitter Screen for a description of this screen.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Dynamic > Mode: Mode S Extended > Mode S Squitters Softkey

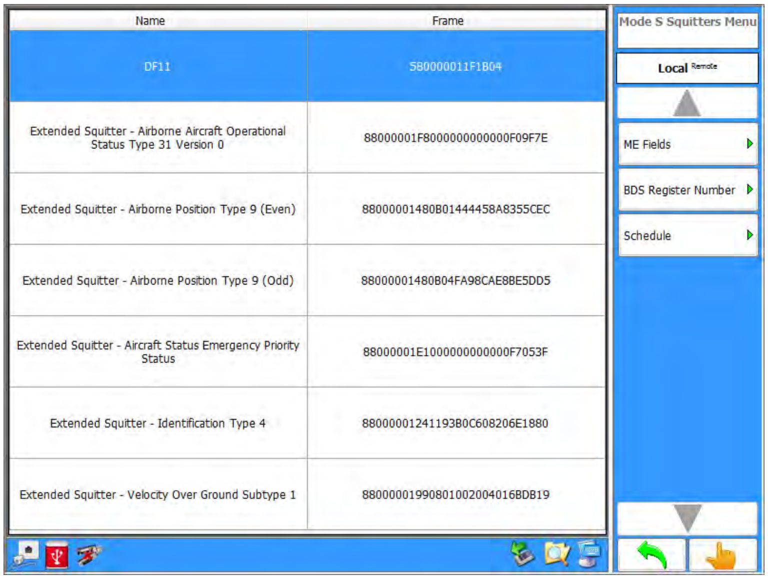



**Figure 1.2.3 - 82 TCAS Dynamic Mode S Extended Squitters Screen**

### 3.4.21.13.2 TCAS Dynamic Mode S Extended Coordinations Screen

This screen is similar to the TCAS Static Mode S Coordinations Screen. Refer to Section 3.4.21.2, TCAS Intruders Static Mode S Coordinations Message Screen for a description of this screen.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Dynamic > Mode: Mode S Extended > Coordinations Softkey

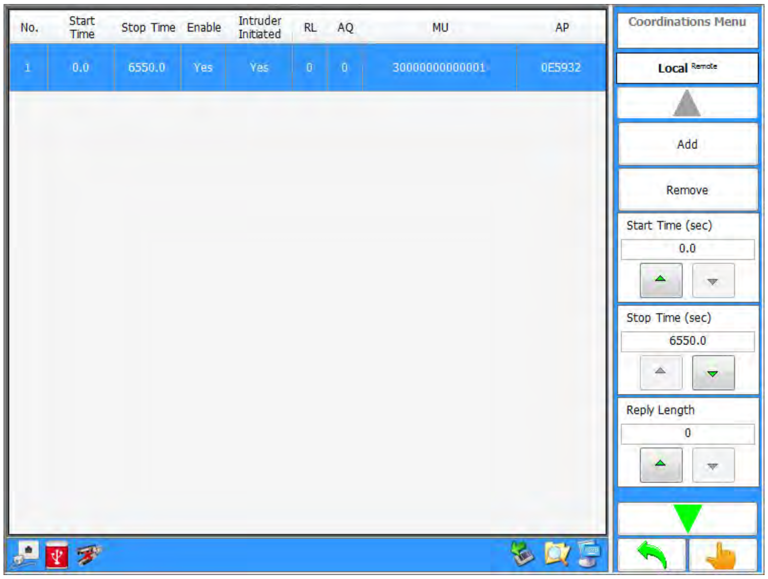



**Figure 1.2.3 - 83 TCAS Dynamic Mode S Extended Coordinations Screen**

### 3.4.21.13.3 TCAS Dynamic Mode S Extended Broadcasts Screen

This screen is similar to the TCAS Static Mode S Broadcasts Screen. Refer to Section 3.4.21.3, TCAS Intruders Static Mode S Broadcast Message Screen for a description of this screen.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Dynamic > Mode: Mode S Extended > Broadcasts Softkey

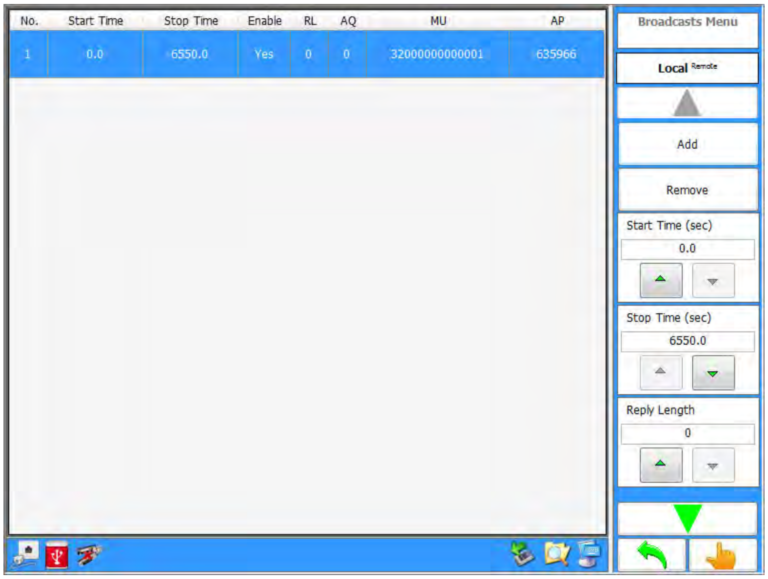



**Figure 1.2.3 - 84 TCAS Dynamic Mode S Extended Broadcasts Screen**

### 3.4.21.13.4 TCAS Dynamic Mode S Extended DF16 Replies Screen

This screen is similar to the TCAS Static Mode S DF16 Replies Screen. Refer to Section 3.4.21.3.2, TCAS Intruders Static Mode S DF16 Replies Screen for a description of this screen.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey > Type: Dynamic > Mode: Mode S Extended > DF16 Replies Softkey

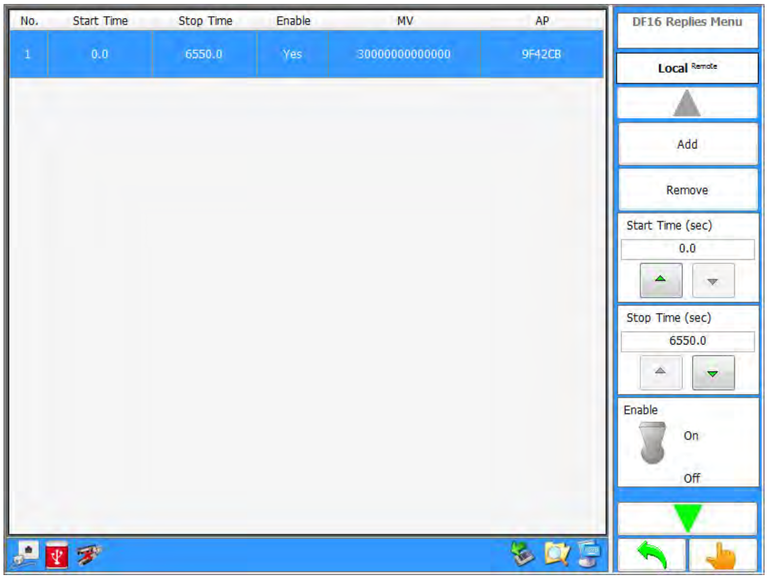



**Figure 1.2.3 - 85 TCAS Dynamic Mode S Extended DF16 Replies Screen**

### 3.4.21.13.5 TCAS Dynamic Mode S Extended UFO's Screen

This screen is similar to the TCAS Static Mode S UFO's Screen. Refer to Section 3.4.21.3.4, TCAS Intruders Static Mode S UF0's Screen for a description of this screen.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey Type: Dynamic > Mode: Mode S Extended > UFO's Softkey

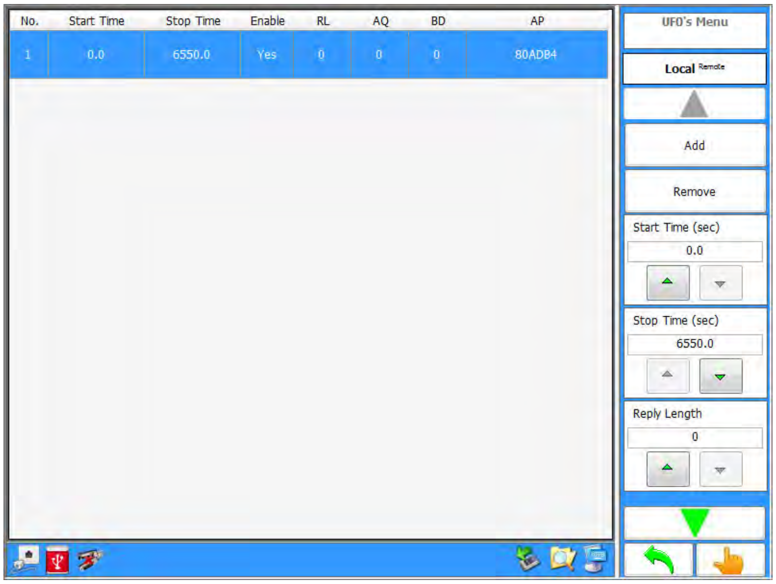



**Figure 1.2.3 - 86 TCAS Dynamic Mode S Extended UFO's Screen**

### 3.4.21.13.6 TCAS Dynamic Mode S Extended Waypoints Screen

This screen is similar to the TCAS Dynamic Mode S Waypoints Screen. Refer to Section 3.4.21.9.6, TCAS Intruders Dynamic Mode S Waypoints Screen for a description of this screen.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Intruders Softkey Type: Dynamic > Mode: Mode S Extended > Waypoints Softkey

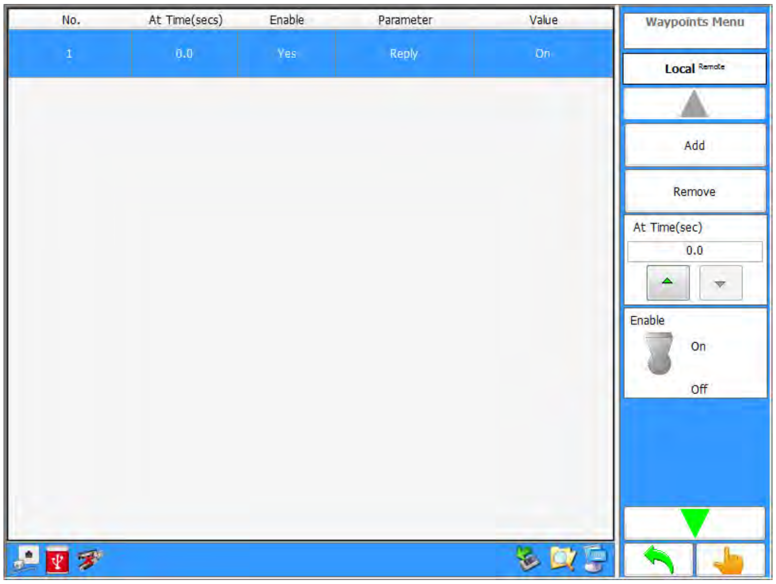



**Figure 1.2.3 - 87 TCAS Dynamic Mode S Extended Waypoints Screen**

### 3.4.22 TCAS SCENARIO GROUND STATION SCREEN

Allows the user to define up to 15 different ground stations as well as define the time frame and what type of interrogation to perform.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Ground Stations Softkey

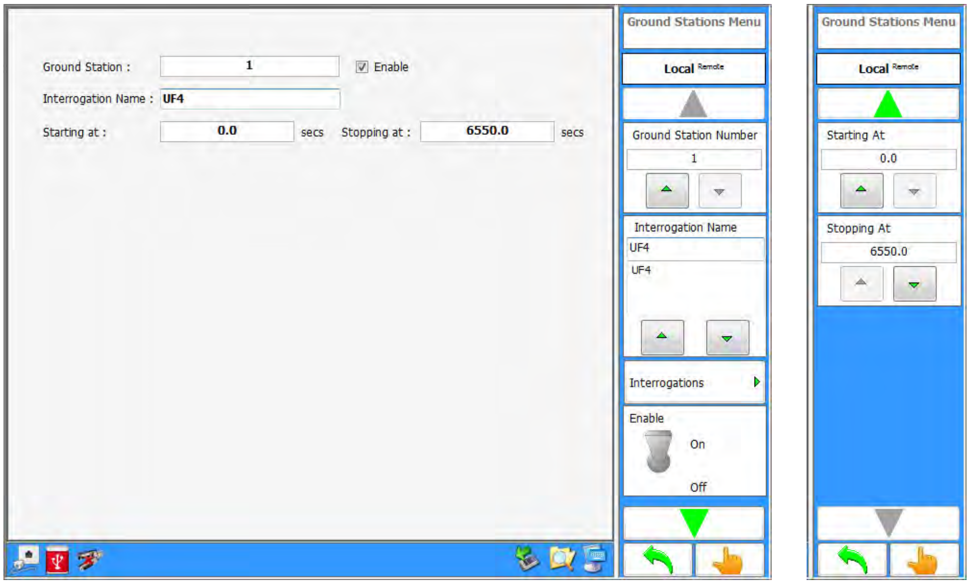



**Figure 1.2.3 - 88 TCAS Ground Station Screen**

| Screen Components | Description |
|---|---|
| **Ground Station Field** | Defines the Ground Station name. |
| **Interrogation Name Menu** | Selects the Interrogation Name of a valid UF message. |
| **Starting at Field** | Defines the transmission start time for the selected interrogation. |
| **Stopping at Field** | Defines the transmission stop time for the selected interrogation. |
| **Enable** | Enables/disables the selected Ground Station. |
| **Interrogations Softkey** | Accesses the Ground Station Interrogation Screen. Refer to Section 3.4.22.1, TCAS Ground Station Interrogation Screen. |

### 3.4.22.1 TCAS Ground Station Interrogation Screen

Allows the user to modify the contents of the selected UF message in different time sections. A data grid is displayed of all defined UF messages at all timeframes.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Ground Stations Softkey > Interrogations Softkey

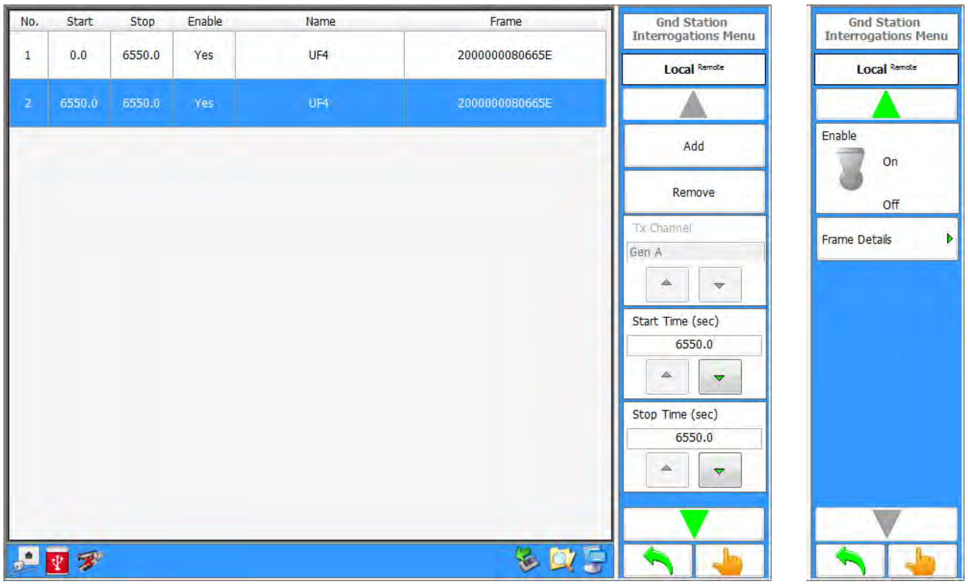



**Figure 1.2.3 - 89 TCAS Ground Station Interrogation Screen**

| Screen Components | Description |
|---|---|
| **Add Softkey** | Allows the user to add a new time interval. |
| **Remove Softkey** | Allows the user to remove a time interval. |
| **Start Time Field** | Allows the user to select the start time for the selected interval. |
| **Stop Time Field** | Allows the user to select the stop time for the selected interval. |
| **Enable** | Enables/disables transmission during the selected interval. |
| **Frame Details Softkey** | Accesses details of the UF Message Frame Details Users Screen. |

### 3.4.22.1.1 TCAS Ground Station Interrogation Frame Details Screen

The Interrogation Frame Details Screen displays details for the selected UF message. Message details are edited using the softkey menu.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Ground Stations Softkey > Interrogations Softkey > Frame Details Softkey

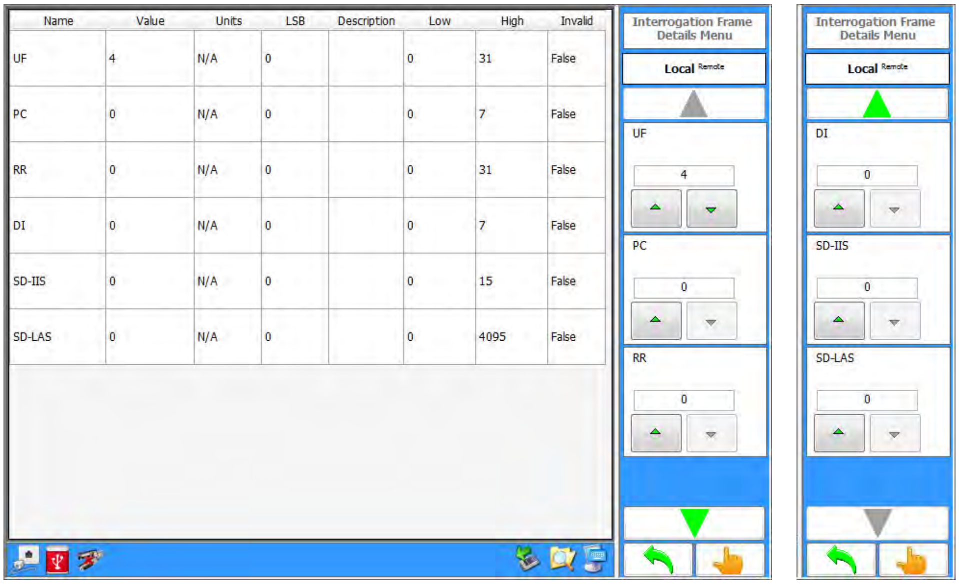



**Figure 1.2.3 - 90 TCAS Ground Station Interrogation Frame Details Screen**

### 3.4.23 TCAS VIDEO BLOCKS SCREEN

The Video Blocks Screen allows the user to define the video block and trigger mechanism to transmit the block.

#### 3.4.23.1 TCAS Video Blocks Mode S Screen

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Video Blocks Softkey > Trigger Source: Mode S TCAS Only


**Figure 1.2.3 - 91 TCAS Video Block Mode S**

| Screen Components | Description |
|---|---|
| **Video Block Number Field** | Defines the Video Block Number. |

| Screen Components | Description |
|---|---|
| **Starting at Field** | Defines the start time, the initial time for video block transmission. |
| **Stopping at Field** | Defines the stop time, the final time for video block transmission. |
| **Trigger Source Menu** | Selects the Trigger Source. |
| **Tx Channel Menu** | Selects the Tx Channel to transmit the video block. Tx Channels are defined on the TCAS Settings user Screen. Refer to Section 3.4.1, TCAS Settings Screen. |
| **Bearing Field** | Defines the Bearing of the transmitter when transmitting the video block |
| **Range Field** | Defines the Range, the time delay from the trigger. |
| **Altitude Field** | Defines the Altitude. Only used when the dynamic velocity is not 0. |
| **Velocity Field** | Defines the Velocity. |
| **Vertical Speed Field** | Defines the Vertical Speed. Only used when the dynamic velocity is not 0. |
| **Track Field** | Defines the Track Angle. Only used when the dynamic velocity is not 0. |
| **Reply Power Field** | Defines the Reply Power. |
| **Reply Antenna Menu** | Selects the Reply Antenna. |
| **Enable** | Enables/disables the video block. |
| **Mode S Address Field** | Defines the Mode S Address (Hexadecimal). |
| **Altitude Code Mode Toggle Switch** | Selects the Altitude Code Mode. |
| **One Shot Video Data Softkey** | Accesses the One Shot Video Data Screen. Refer to Section 3.4.23.2.1, TCAS Video Block One Shot Video Data Softkey Menu. |
| **Video Waypoints Softkey** | Accesses the Video Waypoints Screen.Refer to Section 3.4.23.2.2, TCAS Video Blocks Video Waypoints Softkey Menu. |
| **Video Data Bit Softkey** | Accesses the Video Data Bit Screen.Refer to Section 3.4.23.2.3, TCAS Video Blocks Video Data Bit. |

### 3.4.23.2 TCAS Video Blocks Mode C Screen

This screen allows the user to define the video block and trigger mechanism to transmit the block.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Video Blocks Softkey > Trigger Source: Mode C

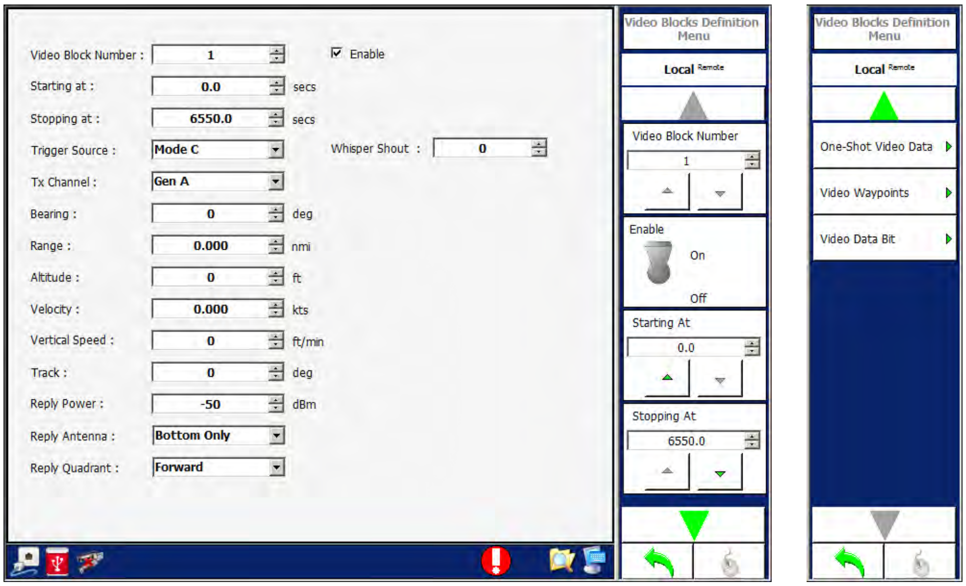



**Figure 1.2.3 - 92 TCAS Video Block Mode C Screen/Menu**

| Screen Components | Description |
|---|---|
| **Video Block Number Field** | Defines the Video Block Number. |
| **Starting at Field** | Defines the start time, the initial time for video block transmission. |
| **Stopping at Field** | Defines the stop time, the final time for video block transmission. |
| **Trigger Source Menu** | Selects the Trigger Source. |
| **Tx Channel Menu** | Selects the Tx Channel to transmit the video block. Tx Channels are defined on the TCAS Settings user Screen. Refer to Section 3.4.1, TCAS Settings Screen. |
| **Bearing Field** | Defines the Bearing of the transmitter when transmitting the video block |
| **Range Field** | Defines the Range, the time delay from the trigger. |
| **Altitude Field** | Defines the Altitude. Only used when the dynamic velocity is <u>not</u> 0. |
| **Velocity Field** | Defines the Velocity. |
| **Vertical Speed Field** | Defines the Vertical Speed. Only used when the dynamic velocity is <u>not</u> 0. |
| **Track Field** | Defines the Track Angle. Only used when the dynamic velocity is <u>not</u> 0. |

| Screen Components | Description |
|---|---|
| **Reply Power Field** | Defines the Reply Power. |
| **Reply Antenna Menu** | Selects the Reply Antenna. |
| **Reply Quadrant** | Defines the Reply Quadrant. |
| **Enable** | Enables/disables the video block. |
| **Whisper Shout** | Defines the Whisper Shout. |
| **One Shot Video Data Softkey** | Accesses the One Shot Video Data Screen. |
| **Video Waypoints Softkey** | Accesses the Video Waypoints Screen. |
| **Video Data Bit Softkey** | Accesses the Video Data Bit Screen. |

#### 3.4.23.2.1 TCAS Video Block One Shot Video Data Softkey Menu

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Video Blocks Softkey > Trigger Source: Mode S TCAS Only / Mode C > One-Shot Video Data Softkey

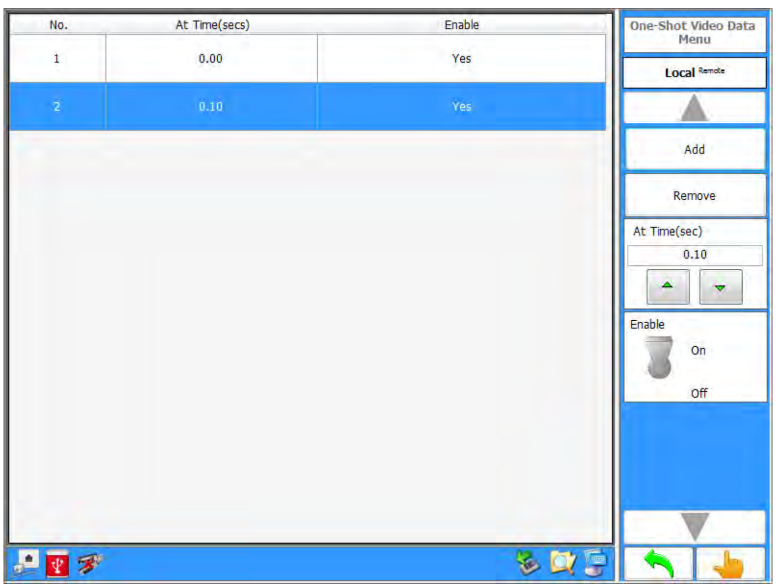



**Figure 1.2.3 - 93 TCAS Video Block - One Shot Video Data**

| Screen Components | Description |
|---|---|
| **Add Softkey** | Allows the user to add a new video block. |
| **Remove Softkey** | Allows the user to remove the selected video block. |
| **At Time Field** | Defines the time. |
| **Enable** | Enables/disables the selected video block. |

### 3.4.23.2.2 TCAS Video Blocks Video Waypoints Softkey Menu

Allows setting waypoints either by time, location (latitude and longitude realistic airplane simulation) or forced trajectory (latitude and longitude pass over).

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Video Blocks Softkey > Trigger Source: Mode S TCAS Only / Mode C > Video Waypoints Softkey

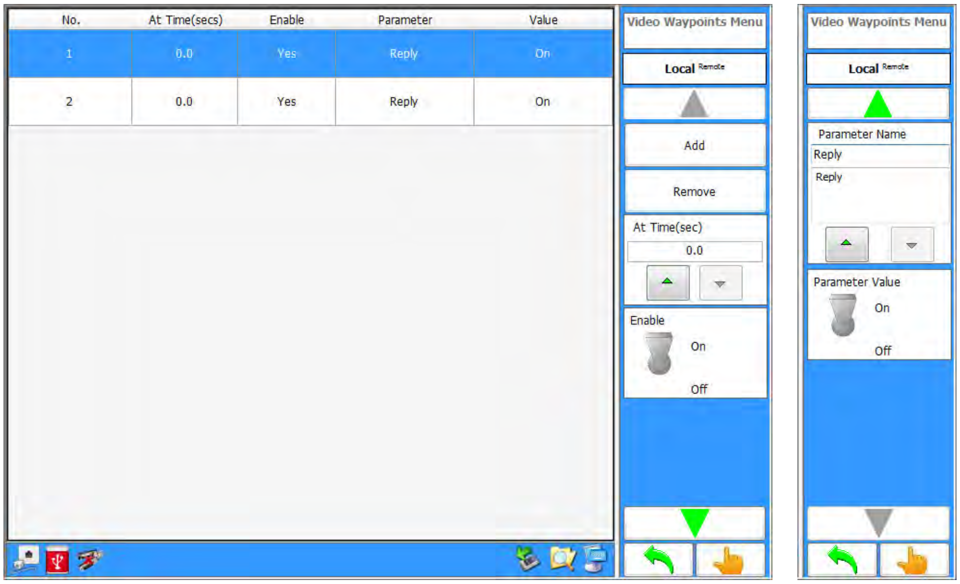



**Figure 1.2.3 - 94 TCAS Video Blocks Video Waypoints**

| Screen Components | Description |
|---|---|
| **Add Softkey** | Allows the user to add a new waypoint. |
| **Remove Softkey** | Allows the user to remove the selected waypoint. |
| **At Time Field** | Defines the time. |
| **Enable** | Enables/disables the video waypoint. |
| **Parameter Name Field** | Defines the Parameter Name. |
| **Parameter Value Field** | Defines the Parameter Value. |

### 3.4.23.2.3 TCAS Video Blocks Video Data Bit

This screen allows the user to define video block bit data.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Video Blocks Softkey > Video Data Bit Softkey

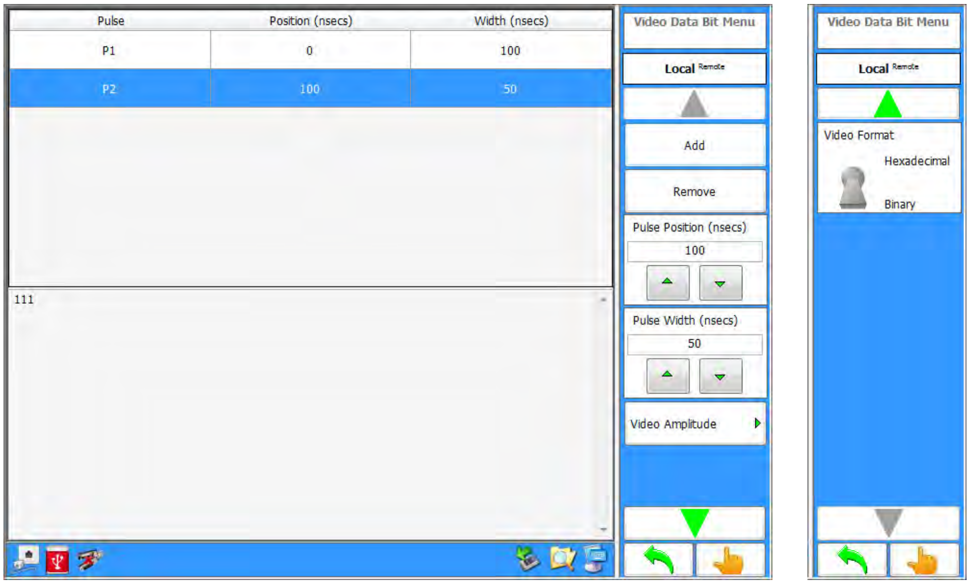



**Figure 1.2.3 - 95 TCAS Video Blocks Video Data Bit**

| Screen Components | Description |
|---|---|
| **Add Softkey** | Allows the user to add a new pulse. |
| **Remove Softkey** | Allows the user to remove the selected pulse. |
| **Pulse Position Field** | Defines the starting position of the selected pulse. |
| **Pulse Width Field** | Defines the width of the selected pulse. |
| **Video Amplitude Softkey** | Accesses the Video Amplitude Screen. |
| **Video Format Toggle Switch** | Selects the format of displaying the video bits. |

### 3.4.23.2.4 TCAS Video Blocks Video Amplitude

This screen allows users to configure video block amplitude parameters.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Video Blocks Softkey > Video Data Bit Softkey > Select Data Bit Row > Video Amplitude Softkey

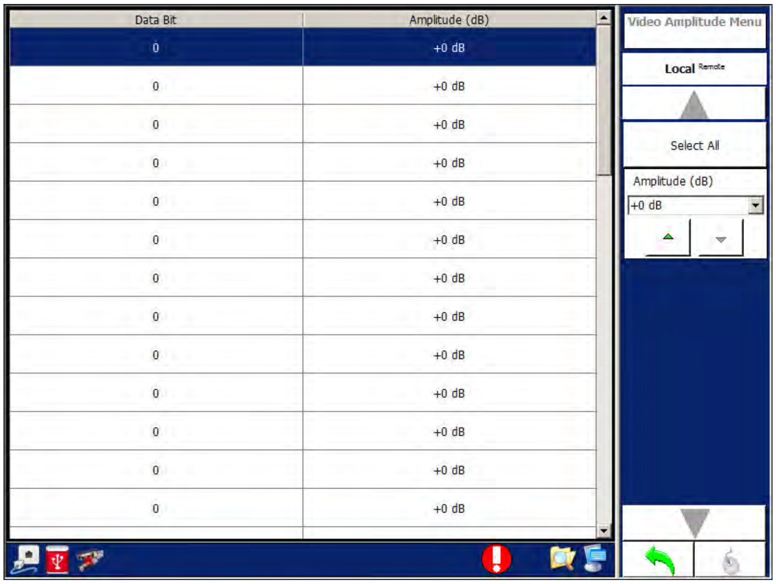



**Figure 1.2.3 - 96 TCAS Video Blocks Video Amplitude**

| Screen Components | Description |
|---|---|
| **Select All Softkey** | Selects all video data bits. |
| **Amplitude Field** | Defines the Amplitude of the selected video data bit(s). |

### 3.4.24 TCAS ATCRBS PULSE INFORMATION SCREEN

Allows the user to modify the width, position, amplitude and visibility of the ATCRBS pulse for a selected Generator and allows changing the rise and fall times for the selected Generator.

Parameters can be defined using the fields on the Main Display Area or using Pulse Settings on the Softkey Menus.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > ATCRBS Pulse Information Softkey

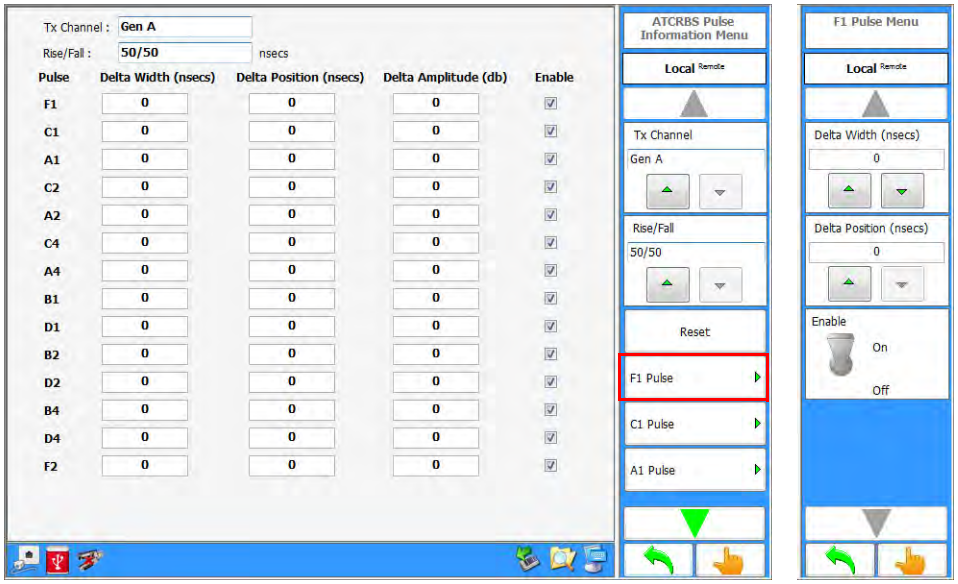



**Figure 1.2.3 - 97 TCAS ATCRBS Pulse Information Screen**

| Screen Components | Description |
|---|---|
| **Tx Channel Menu** | Selects the Tx Channel. Tx Channels are defined on the TCAS Settings user Screen. Refer to Section 3.4.1, TCAS Settings Screen. |
| **Rise/Fall Field** | Defines the rise and fall time for the selected Generator. |
| **Delta Width (ns) Field** | Defines the Delta Width for the selected Generator. |
| **Delta Position (ns) Field** | Defines the Delta Position for the selected Generator. |
| **Delta Amplitude (ns) Field** | Defines the Delta Amplitude for the selected Generator. |
| **Enable** | Enables/disables the Generator. |
| **Reset Softkey** | Pressing this softkey resets values back to the Factory default settings. |
| **“XX” Pulse Softkeys** | Accesses a settings softkey menu for the selected pulse type. |

### 3.4.25 TCAS MODE S PULSE INFORMATION SCREEN

Allows the user to modify the width, position, amplitude and visibility of the Mode S Preamble pulses for a selected Generator and allows changing the rise and fall times for the selected Generator.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Mode S Pulse Information Softkey

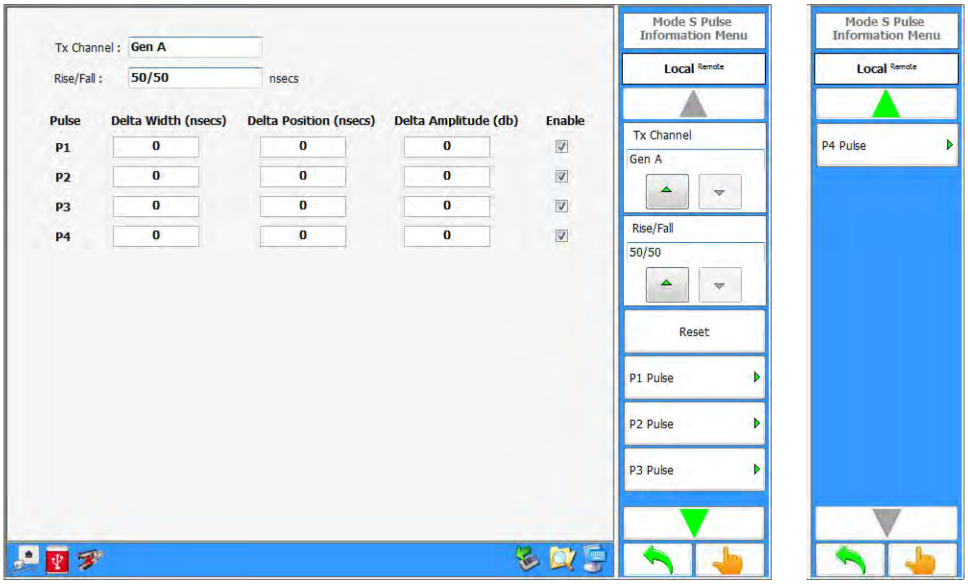



**Figure 1.2.3 - 98 TCAS Mode S Pulse Information Screen**

| Screen Components | Description |
|---|---|
| **Tx Channel Menu** | Selects the Tx Channel. Tx Channels are defined on the TCAS Settings user Screen. Refer to Section 3.4.1, TCAS Settings Screen. |
| **Rise/Fall Field** | Defines the rise and fall time for the selected Generator. |
| **Delta Width (ns) Field** | Defines the Delta Width for the selected Generator. |
| **Delta Position (ns) Field** | Defines the Delta Position for the selected Generator. |
| **Delta Amplitude (ns) Field** | Defines the Delta Amplitude for the selected Generator. |
| **Enable** | Enables/disables the Generator. |
| **Reset Softkey** | Pressing this softkey resets values back to the Factory default settings. |
| **“XX” Pulse Softkeys** | Accesses a settings softkey menu for the selected pulse type. |

### 3.4.26 TCAS DISPLAY

Allows the user to view the defined scenario during the tests. The Own Aircraft information is displayed in the bottom left corner of the screen.

**SCREEN SEQUENCE:**

TCAS Scenario Screen > Display Softkey

**NOTE: WHEN AN EXTERNAL SOURCE (ETHERNET OR 429) IS USED, THE OWN AIRCRAFT INFORMATION IS UPDATED EVERY 5 SECONDS WHEN A SCENARIO IS NOT RUNNING. THE DATA IS UPDATED EVERY SECOND IF THE SCENARIO IS RUNNING.**

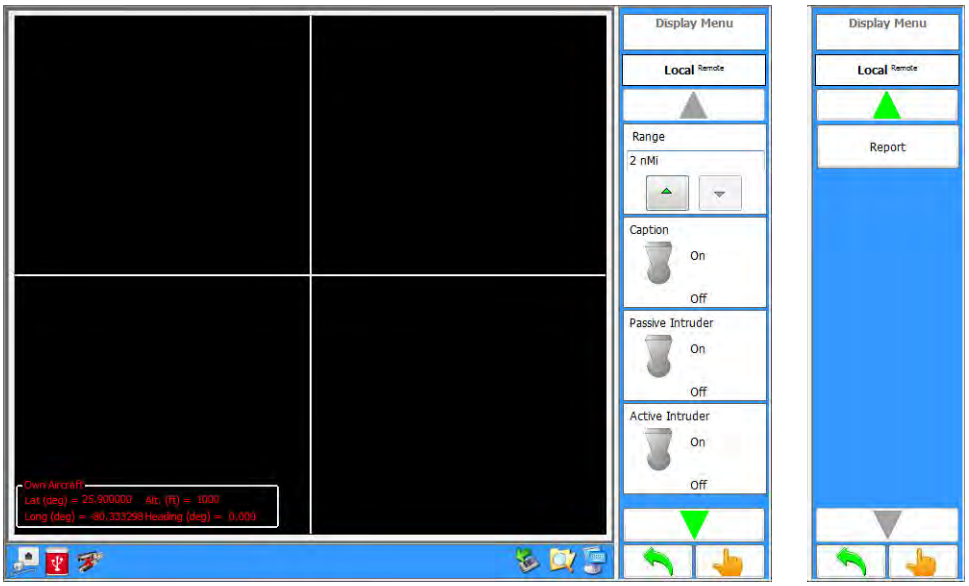



**Figure 1.2.3 - 99 TCAS Display Screen/Menu**

| Screen Components | Description |
|---|---|
| **Range Field** | Allows the user to select the Display Range. |
| **Caption Toggle Switch** | Enables/disables displaying a caption next to the intruder. |
| **Passive Intruder Toggle Switch** | Enables/disables displaying the passive intruder squitter position.<br>Passive intruders are only shown when Hybrid Deviation is enabled.<br>Passive intruders are the ADS-B information. |
| **Active Intruder Toggle Switch** | Enables/disables displaying the active intruder position.<br>Active intruder is the DF reply position. |
| **Report Softkey** | Pressing this softkey opens a dialog window that sllows the user to save the scenario to a file.<br>**NOTE:** The Report softkey is not functional in this release. |

## 3.5 TRANSPONDER TEST MODE

Transponder Mode allows users to configure the Test Set to perform transponder testing. The Transponder Home Screen displays all currently installed compatibility options.

**SCREEN SEQUENCE:**

Home Screen > Transponder Softkey

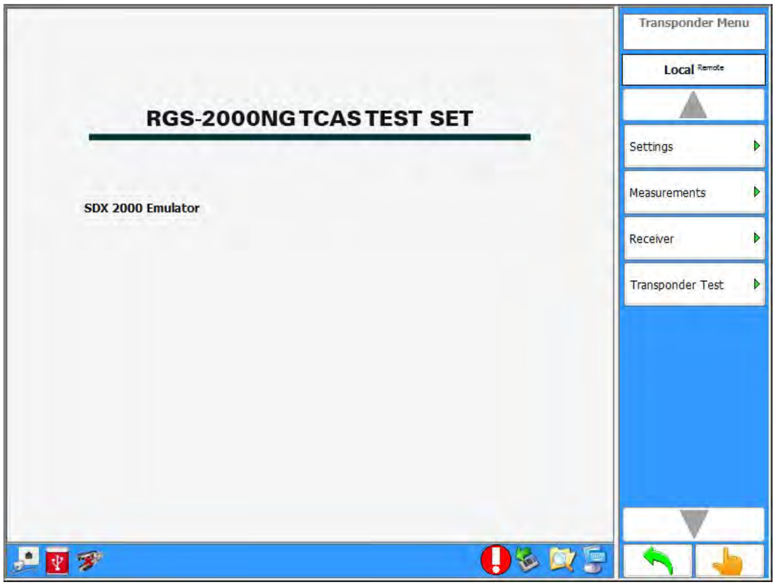



**Figure 1.2.3 - 100 Transponder Home Screen**

| Screen Components | Description |
|---|---|
| **Settings Softkey** | Accesses the Transponder Settings Screen. Refer to Section 3.5.1, Transponder Settings Screen. |
| **Measurements Softkey** | Accesses the Transponder Measurements Screen. Refer to Section 3.5.2, Transponder Measurements Screen. |
| **Receiver Softkey** | Accesses the Transponder Receiver Screen. Refer to Section 3.5.3, Transponder Receiver Screen. |
| **Transponder Test Softkey** | Accesses the Transponder Test Screen. Refer to Section 3.5.4, Transponder Test Screen. |

### 3.5.1 TRANSPONDER SETTINGS SCREEN

Allows the user to configure the Transmitter, Receiver and Antenna Simulator modules in the Test Set for transponder tests. The Transponder Settings Screen is used for testing and troubleshooting of the Test Set. For Transponder unit testing, the Transponder Settings Screen should only be used to set the individual RF Generator frequencies. Other entires may not persist after exiting the Settings Menu.

This screen is similar to the TCAS Settings Screen. Refer to Section 3.4.1, TCAS Settings Screen for a description of this screen.

**SCREEN SEQUENCE:**

Transponder Screen > Settings Softkey

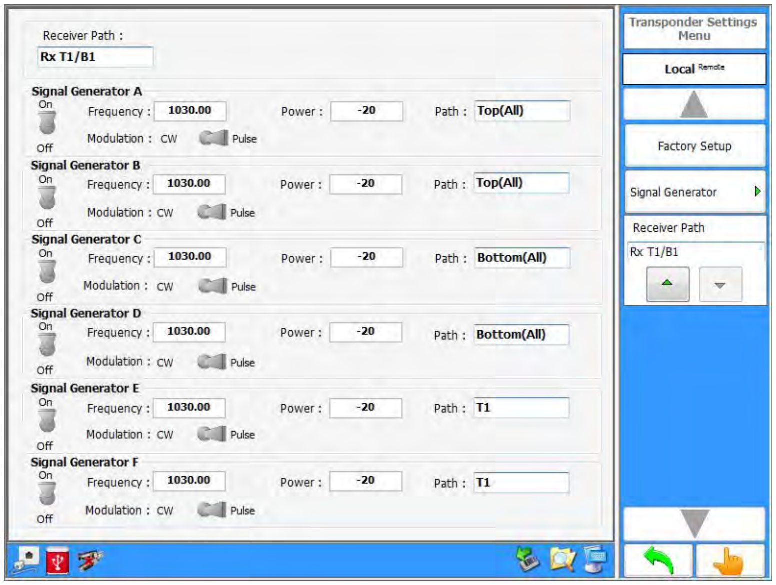



**Figure 1.2.3 - 101 Transponder Settings Screen/Menu**

| Screen Components | Description |
|---|---|
| **Receiver Path Menu** | Selects which port to connect the Top/Bottom Receiver. |
| **Suppression Out** | Enables/disables the Suppression Out. |
| **ON/OFF Toggle Switch** | Enables/disables the Transmitter. |
| **Frequency Field** | Defines the Transmitter frequency. |
| **Power Field** | Defines the Transmitter power. |
| **Path Menu** | Selects the Transmitter Path (Antenna Port). |
| **Modulation Toggle Switch** | Selects the Modulation. |
| **Factory Setup Softkey** | Pressing this softkey sets all hardware to the default settings according to the hardware configuration. |

### 3.5.2 TRANSPONDER MEASUREMENTS SCREEN

The Transponder Measurements Screen allows the user to view the pulses from the Transponder or ADS-B Transmitter. The Transponder Measurements Screen allows the user to perform power, pulse width, rise time, fall time, spacing and frequency measurements.

This screen is similar to the TCAS Measurements Screen. Refer to Section 3.4.3, TCAS Measurements Screen for a description of this screen.

**SCREEN SEQUENCE:**

Transponder Screen > Measurements Softkey


**Figure 1.2.3 - 102 Transponder Measurements Screen - Measurements Mode**

### 3.5.3 TRANSPONDER RECEIVER SCREEN

The Transponder Receiver Screen allows the user to view UUT and Test Set transmissions. The screen displays the last 8 transmissions received from the UUT and Test Set. Blue lines indicate receptions from the UUT; green lines indicate receptions from the Test Set.

When performing an export, the Test Set generates a SDF (Compact Database File) and exports the file to the selected file location. All the DF17 position, velocity and identification messages are decoded in the Reporting Tool.

This screen is similar to the TCAS Receiver Screen. Refer to Section 3.4.8, TCAS Receiver Screen for a description of this screen.

**SCREEN SEQUENCE:**

Transponder Screen > Receiver Softkey

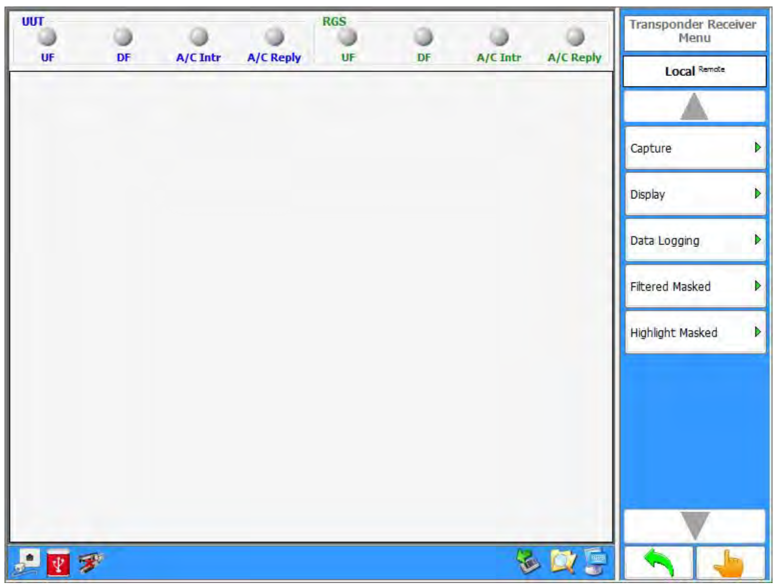



**Figure 1.2.3 - 103 Transponder Receiver Screen**

### 3.5.4 TRANSPONDER TEST SCREEN

The Transponder Test Screen in Single Interrogation Mode allows the user to set up the Test Set to transmit a Mode A, Mode C, Mode A All-Call, Mode C Al--Call, Mode A/Mode S All-Call, Mode C/ Mode S All-Call, Mode S, P1-P2, Pulse or DME pulse pair.

#### 3.5.4.1 Transponder Single Interrogation Test Mode

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Single Interrogation

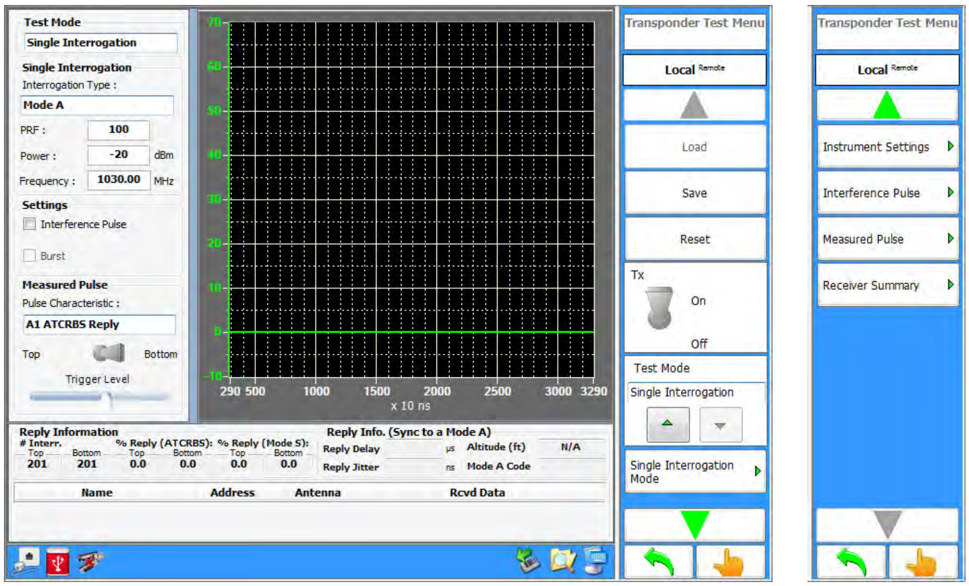



**Figure 1.2.3 - 104 Transponder Test Screen**

| Screen Components | Description |
|---|---|
| **Test Mode Menu** | This menu selects the test Interrogation Mode. |
| **Interrogation Type Menu** | Selects the type of interrogation to be performed. This field is linked to the (Interrogation) Mode Menu on the Transponder Single Interrogation Mode (Definition) Screen (Section 3.5.4.2). |
| **PRF Field** | Defines the pulse repetition rate (Pulse Repetition Frequency). This field is linked to the PRF Field on the Transponder Single Interrogation Mode (Definition) Screen (Section 3.5.4.2). |
| **Power Field** | Selects the Power. This field is linked to the Power Field on the Transponder Single Interrogation Mode (Definition) Screen (Section 3.5.4.2). |
| **Frequency Field** | Selects the Transmitter frequency. This field is linked to the Frequency Field on the Transponder Single Interrogation Mode (Definition) Screen (Section 3.5.4.2). |
| **Settings** | |

| Screen Components | Description |
| --- | --- |
| Interference Pulse | Turns the Interference Pulse ON/OFF (Single, Double and Interrogation Table Modes). Interference Pulse only supported on Top Antenna port.<br>Interference Pulse Settings are defined on the Single Interrogation Test Interference Pulse Screen (Section 3.5.4.4). |
| Burst Tick Box | Not available in Single Interrogation Mode. |
| **Pulse Characteristic Menu** | Selects the pulse to be measured. This field is linked to the Measured Pulse Menu on the Single Interrogation Test Measured Pulse Softkey Menu (Section 3.5.4.5). |
| **Antenna Selection Toggle Switch** | Selects the Antenna from which the pulse is measured (Top or Bottom). |
| **Trigger Level Slider** | Selects the scope trigger level. A precise trigger level can be defined using the Trigger Field on the Instrument Settings Softkey Menu. |
| **Reply Information** | These fields display data contained in the intruder reply message. |
| **Load Softkey** | Allows the user to load a saved Transponder Test. |
| **Save Softkey** | Allows the user to save the current test setup to a file. |
| **Reset Softkey** | Resets the current user screen settings to default values. |
| **Tx Toggle Switch** | Selects the Start (On) or /Stop (Off) transmissions. |
| **Single Interrogation Mode Softkey** | Accesses the Single Interrogation Mode (Pulse Settings) Screen. Refer to Section 3.5.4.2, Transponder Single Interrogation Mode (Definition) Screen. |
| **Instrument Settings Softkey** | Accesses the Transponder Block Instrument Settings Softkey Menu. Refer to Section 3.5.4.3, Single Interrogation Test Instrument Settings Softkey Menu. |
| **Interference Pulse Softkey** | Accesses the Transponder Block Interference Pulse Screen. Refer to Section 3.5.4.4, Single Interrogation Test Interference Pulse Screen. |
| **Measured Pulse Softkey** | Accesses the Transponder Block Measured Pulse Screen. Refer to Section 3.5.4.5, Single Interrogation Test Measured Pulse Softkey Menu. |
| **Receiver Summary Softkey** | Accesses the Transponder Block Receiver Summary Screen. Refer to Section 3.5.4.6, Single Interrogation Test Receiver Summary Screen. |

### 3.5.4.2 Transponder Single Interrogation Mode (Definition) Screen

This screen is used to define the single interrogation type and associated interrogation parameters (i.e., pulse spacing, pulse width, etc...).

**NOTE: THE LAYOUT OF THIS SCREEN DEPENDS ON THE SELECTED INTERROGATION MODE. THIS SECTION DOES NOT INCLUDE SCREEN EXAMPLES OF ALL SUPPORTED INTERROGATION MODES; EXAMPLE SCREENS ARE PROVIDED FOR DEFINITION PURPOSES AS NEEDED.**

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Single Interrogation > Single Interrogation Mode Softkey > Mode: Select Mode

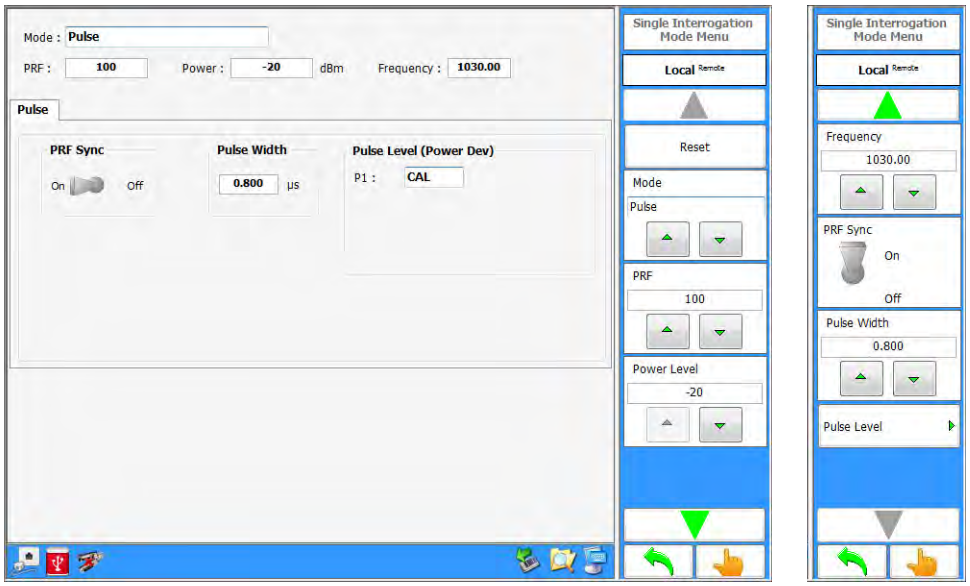



**Figure 1.2.3 - 105 Transponder Single Interrogation (Pulse) Screen**

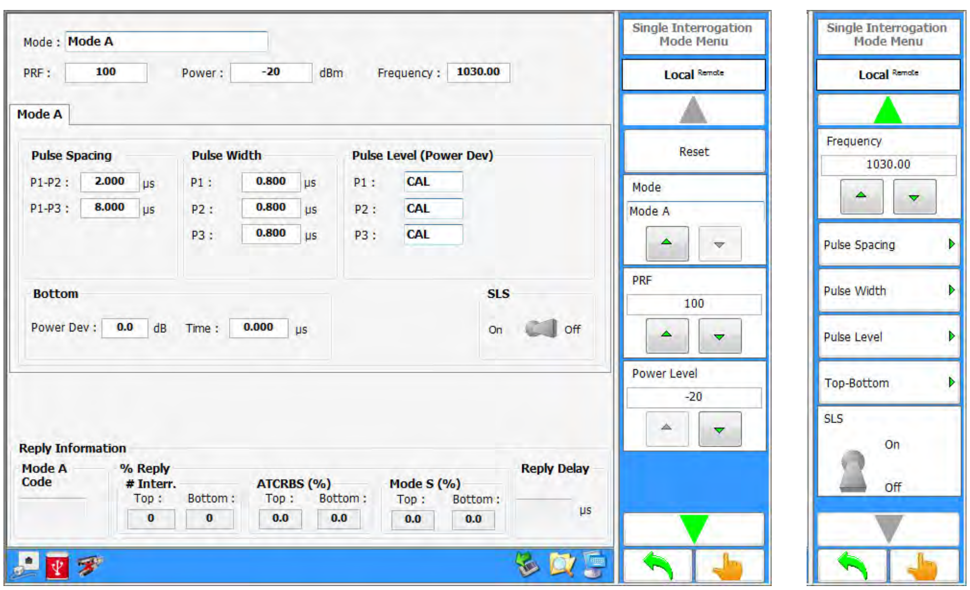



**Figure 1.2.3 - 106 Transponder Single Interrogation (Mode A) Screen**

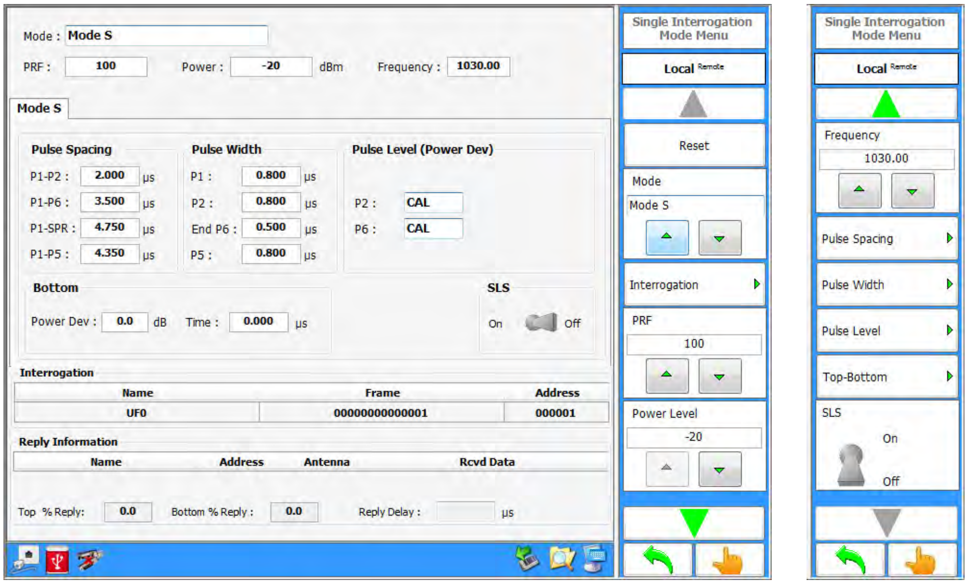


**Figure 1.2.3 - 107 Transponder Single Interrogation (Mode S) Screen**

| Screen Components | Description |
|---|---|
| **Mode Menu** | Selects the type of interrogation to be performed. This field is linked to the Interrogation Type on the Transponder Test Screen. |
| **PRF Field** | Defines the pulse repetition rate (Pulse Repetition Frequency). |
| **Power Field** | Defines the Power. |
| **Frequency Field** | Defines the frequency. |
| **PRF Sync** | Allows the user to sync the PRF of the first transmission with the second. Only available for P1-P2, Pulse or DME interrogations. |
| **Pulse Spacing Fields** | Defines the Pulse Spacing. Parameter can also be defined using the Pulse Spacing Softkey Menu. |
| **Pulse Width Fields** | Defines the Pulse Width for P1, P2 and P3. Parameter can also be defined using the Pulse Width Softkey Menu. |
| **Pulse Level (Power Dev) Fields** | Selects the Pulse Level (Power Dev) for P1, P2 and P3. Parameter can also be defined using the Pulse Level Softkey Menu. |
| **Power Dev Field** | Defines the Antenna Power Deviation between the top and bottom antenna. |
| **Time Field** | Defines the Antenna Time Deviation between the top and bottom antenna. |
| **SLS Toggle Switch** | Turns the Side Lobe Suppression (SLS) pulse on the SUPP Connector ON or OFF. |
| **Interrogation Fields** | Displays message data for the selected table entry. |
| **Reply Information Fields** | These fields display data contained in the intruder reply message. |
| **Reset Softkey** | Pressing this softkey resets current user screen settings. |

| Screen Components | Description |
|---|---|
| **Pulse Spacing Softkey** | Accesses Pulse Spacing Settings Softkeys. |
| **Pulse Width Softkey** | Accesses Width Spacing Settings Softkeys. |
| **Pulse Level Softkey** | Accesses Level Spacing Settings Softkeys. |
| **Top-Bottom Softkey** | Accesses Top-Bottom Settings Softkeys. |

### 3.5.4.3 Single Interrogation Test Instrument Settings Softkey Menu

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Single Interrogation > Instrument Settings Softkey

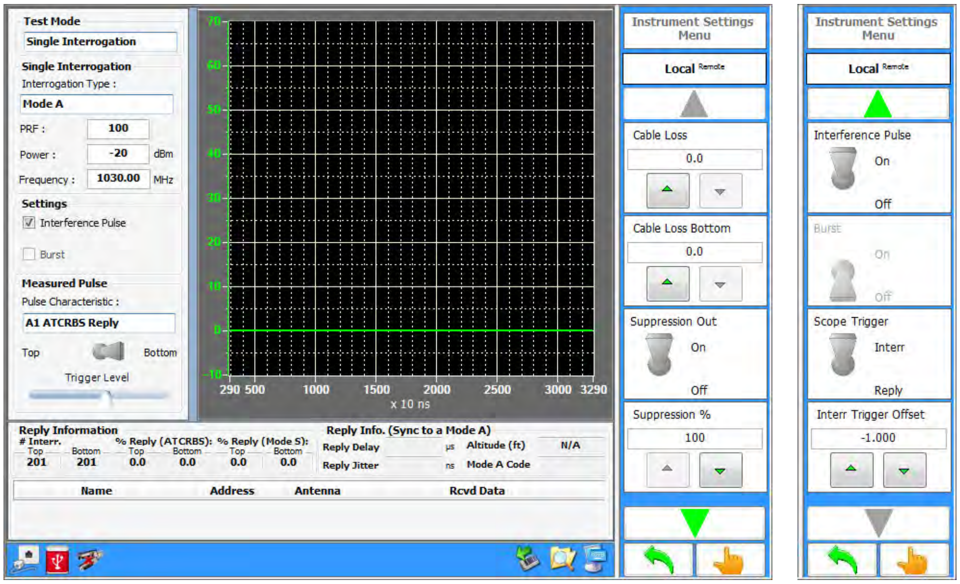



**Figure 1.2.3 - 108 Transponder Test Instrument Settings Softkeys**

| Screen Components | Description |
|---|---|
| **Cable Loss Field** | Selects the Cable Loss on Top Antenna in 0.1 dB steps. |
| **Cable Loss Bottom Field** | Selects the Cable Loss on Bottom Antenna in 0.1 dB steps.. |
| **Suppression Out Toggle Switch** | Enables/disables the Suppression Output. |
| **Suppression % Field** | Defines the Suppression Percentage. This field is available when Suppression Out is turned ON. |
| **Interference Pulse** | Turns the Interference Pulse ON/OFF (Single, Double and Interrogation Table Modes). Interference Pulse only supported on Top Antenna port.<br>Interference Pulse Settings are defined on the Transponder Interrogation Table Interference Pulse Settings Screen (Section 3.5.6.3). |
| **Burst** | Not available in Single Interrogation Mode. |
| **Scope Trigger Toggle Switch** | Sets the Scope trigger to either to the Interrogation or to the Reply. |
| **Interr Trigger Offset Field** | Defines the scope trigger offset value relative to P1 of the interrogation.<br>Field is enabled when Scope Trigger is set to Interrogation Mode. |

### 3.5.4.4 Single Interrogation Test Interference Pulse Screen

This user screen is used to define an interference pulse. The first pulse is set in reference to the top P1 pulse in a single interrogation and the first interrogation in a double interrogation. The second interference pulse needs to be enabled to be transmitted.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Single Interrogation > Interference Pulse Softkey

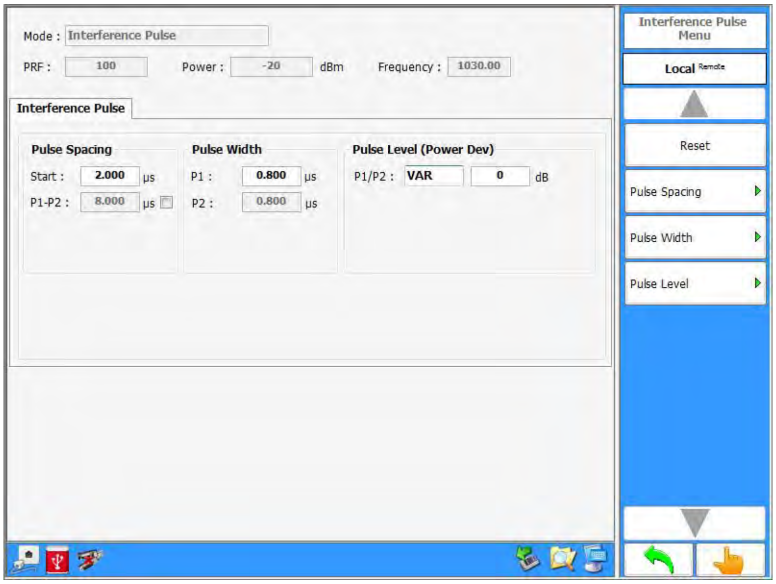



**Figure 1.2.3 - 109 Transponder Interference Pulse Screen**

| Screen Components | Description |
|---|---|
| **Pulse Spacing Field** | Selects the Pulse Spacing. Parameters can also be defined using the Pulse Spacing Softkey Menu.<br>P1-P2 Pulse Spacing is enabled on the Pulse Spacing Softkey Menu. |
| **Pulse Width Field** | Defines the Pulse Width for P1, P2 and P3. Parameter can also be defined using the Pulse Width Softkey Menu. |
| **P1/P2 Pulse Menu** | Selects the interference pulse mode used for the interference pulse. When VAR is selected the Pulse Level Field is enabled which allows the user to define a specific value in dB. |
| **Pulse Level (Power Dev) Field** | Defines the interference pulse amplitude for P1 and P2. Parameter can also be defined using the Pulse Level Softkey Menu. |
| **Reset Softkey** | Pressing this softkey resets current screen settings to default values. |

### 3.5.4.5 Single Interrogation Test Measured Pulse Softkey Menu

The Measured Pulse Softkey Menu is used to define the settings for performing pulse measurements. The contents of this menu depends on the type of pulse selected from the Measure Pulse Menu.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Single Interrogation > Measured Pulse Softkey

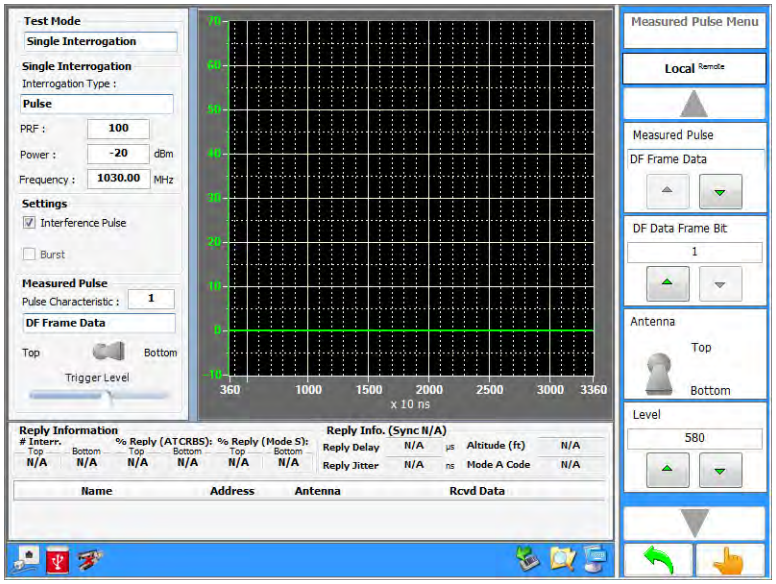



**Figure 1.2.3 - 110 Transponder Measured Pulse Softkey Menus**

| Screen Components | Description |
|---|---|
| **Measured Pulse Menu** | Selects pulse from which to obtain measurement data. |
| **DF Data Frame Bit Field** | This field defines the frame bit of the DF Data. Only applicable to DF Frame Data Measured Pulse type. |
| **Antenna Selection Toggle Switch** | Selects the Antenna from which the pulse is measured (Top or Bottom). |
| **Level Field** | Defines the scope trigger level. The trigger level can also be adjusted using the Trigger Level Slider on the Main Display Area. |

### 3.5.4.6 Single Interrogation Test Receiver Summary Screen

The Receiver Summary Screen displays squitter rates and data for common Transponder squitters.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Single Interrogation > Receiver Summary Softkey

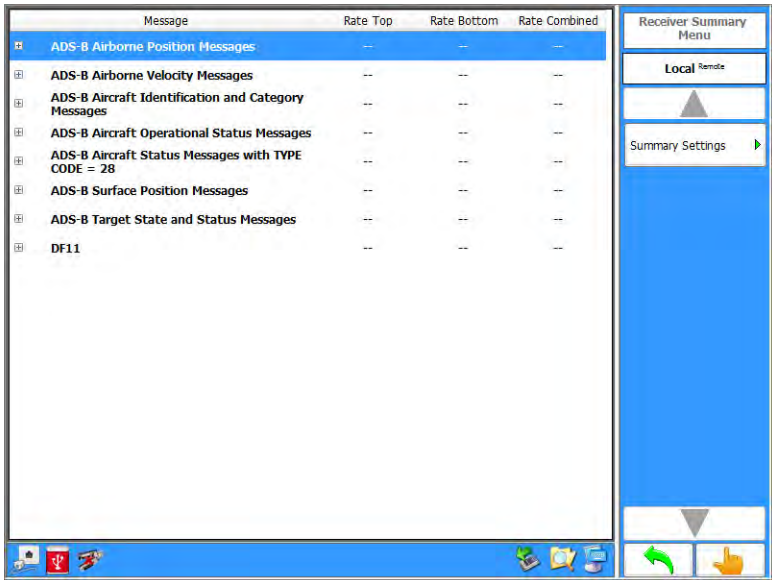



**Figure 1.2.3 - 111 Transponder Test Receiver Summary Screen**

#### 3.5.4.6.1 Single Interrogation Test Receiver Summary Settings Screen

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Single Interrogation > Receiver Summary Softkey > Summary Settings Softkey

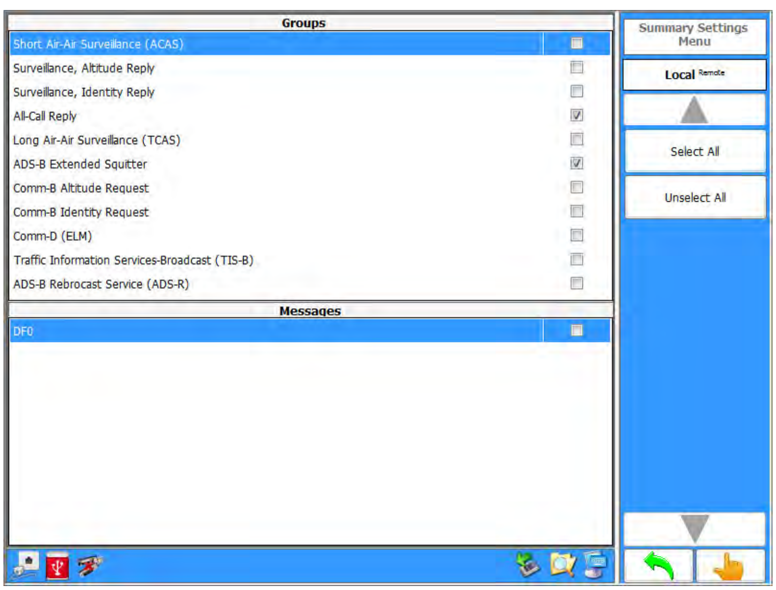



**Figure 1.2.3 - 112 Transponder Receiver Summary Settings Screen**

### 3.5.5 TRANSPONDER DOUBLE INTERROGATION SCREEN

The Transponder Double Interrogation Screen allows the user to set up the Test Set to transmit a double interrogation. Double Interrogation mode transmits both messages on the top antenna.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Double Interrogation

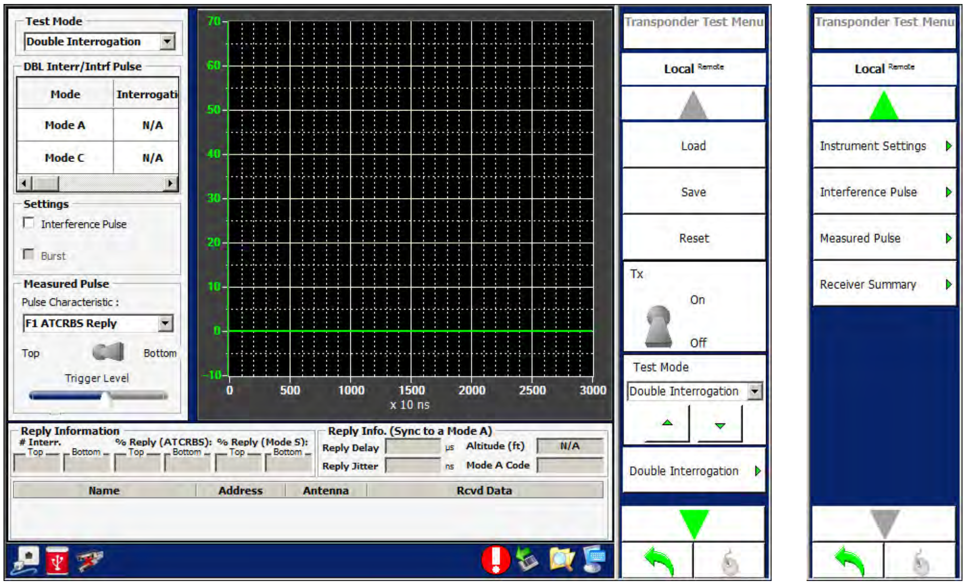



**Figure 1.2.3 - 113 Transponder Double Interrogation Screen**

| Screen Components | Description |
|---|---|
| **Test Mode Menu** | This menu selects the test Interrogation Mode. |
| **Double Interr/Intrf Table** | Displays the two interrogations selected for transmission. |
| **Settings** | |
| Interference Pulse | Turns the Interference Pulse ON/OFF (Single, Double and Interrogation Table Modes). Interference Pulse only supported on Top Antenna port.<br>Interference Pulse Settings are defined on the Interference Pulse Settings Screen (refer to Section 3.5.6.1.2). |
| Burst Mode | Not available in Double Interrogation Mode. |
| **Pulse Characteristic** | Selects the pulse to be measured. |
| **Antenna Selection** | Selects the Antenna from which the pulse is measured (Top or Bottom). |
| **Trigger Level Slider** | Selects the scope trigger level. A precise trigger level can be defined using the Trigger Field on the Transponder Double Interrogation Instrument Settings Softkey Menu (Section 3.5.5.2). |
| **Reply Information** | These fields display data contained in the intruder reply message. If either interrogation type is a non-standard All-Call format, percent reply measurements may be invalid. |
| **Load Softkey** | Allows the user to load a saved Transponder Test. |

| Screen Components | Description |
|---|---|
| **Save Softkey** | Allows the user to save the current test setup to a file. |
| **Reset Softkey** | Resets the current user screen settings to default values. |
| **Tx Toggle Switch** | Starts (On) or /Stops (Off) transmissions. |
| **Double Interrogation Mode Softkey** | Accesses the Double Interrogation Mode Screen. Refer to Section 3.5.5.1, Transponder Double Interrogation (Settings) Screen. |
| **Instrument Settings Softkey** | Accesses the Instrument Settings Softkey Menu. Refer to Section 3.5.5.2, Transponder Double Interrogation Instrument Settings Softkey Menu. |
| **Interference Pulse Softkey** | Accesses the Interference Pulse Screen. Refer to Section 3.5.5.3, Transponder Double Interrogation Interference Pulse Screen. |
| **Receiver Summary Softkey** | Accesses the Receiver Summary Screen. Refer to Section 3.5.5.5, Transponder Double Interrogation Receiver Summary Screen. |

**NOTE: IF THE DOUBLE INTERROGATION SCENARIO IS COMPOSED OF TWO INTERROGATIONS OF THE SAME TYPE (ATCRBS OR MODE S) THE TEST SET ALONE WILL DETERMINE WHICH REPLY IS USED FOR MEASUREMENT PURPOSES (TIMING, FREQUENCY AND POWER) INDEPENDENT OF THE "SYNC" SELECTION ENTERED IN THE "DOUBLE INTERROGATION MENU" SCREEN.**

### 3.5.5.1 Transponder Double Interrogation (Settings) Screen

This screen accesses settings which allows the user to configure double interrogations. When performing double interrogations, both interrogations are outputted on the top antenna port.

Values are defined by selecting a row from the table on the Main Display Area then editing parameters using the Settings SoftKeys.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Double Interrogation > Double Interrogation Softkey

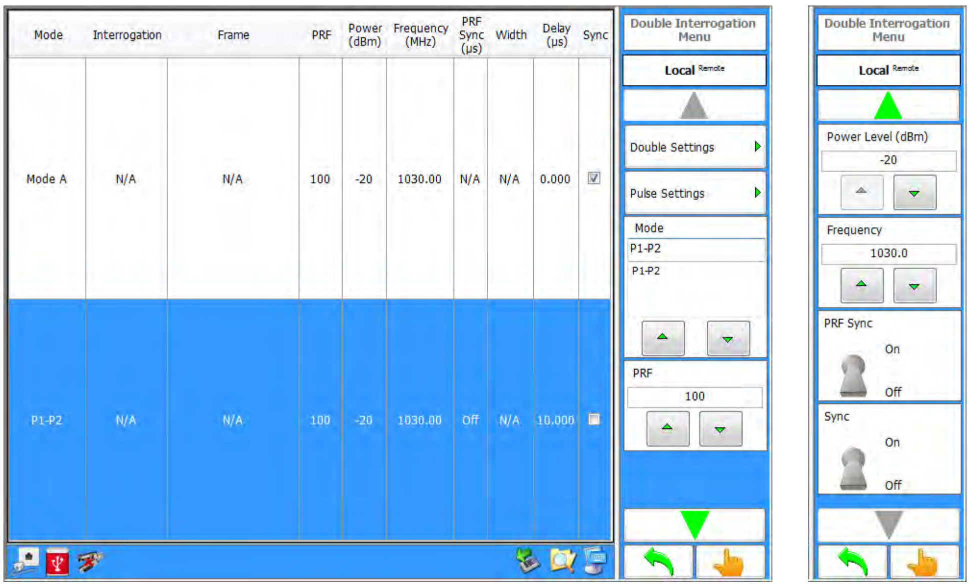



**Figure 1.2.3 - 114 Transponder Double Interrogation (Settings) Screen**

| Screen Components | Description |
|---|---|
| **Sync** | Selects the interrogation number for synchronization. The measured UUT values are obtained from the reply associated with the interrogation selected for synchronization.<br>Enabled using tick box on the Main Display Area or Toggle Switch on the Softkey Menu. |
| **Double Settings Softkey** | Accesses the Double Settings Softkey Menu. Refer to Section 3.5.5.1.1, Transponder Double Interrogation Settings Softkey Menu. |
| **Pulse Settings Softkey** | Accesses the Pulse Settings Softkey Menu. Refer to Section 3.5.5.1.2, Transponder Double Interrogation Pulse Settings Screen. |
| **Mode Menu** | Selects the Transponder Interrogation Mode of the selected Double Interrogation. |
| **PRF Field** | Defines the pulse repetition rate (Pulse Repetition Frequency) of the selected double interrogation. |
| **Power Lev Field** | Defines the antenna power for the top antenna of the selected double interrogation. The bottom antenna power level is calculated by taking this value plus the antenna power deviation setting which is defined on the Transponder Settings Screen (Section 3.5.1).<br>The power level range depends on the power mode selected. |

| Screen Components | Description |
|---|---|
| **Frequency Field** | Selects the Transmitter frequency. |
| **PRF Sync Toggle Switch** | Allows the user to sync or unsync the PRF of the first transmission with the second. Only available for P1-P2, Pulse or DME interrogations. |

#### 3.5.5.1.1 Transponder Double Interrogation Settings Softkey Menu

This screen allows the user to define the P1 to P1 Spacing, Interlace Interrogation and Interlace Ratio settings of the interrogation.

Values are defined by selecting a row from the table on the Main Display Area and using the Settings SoftKeys to edit the settings.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Double Interrogation > Double Interrogation Mode Softkey > Double Settings Softkey

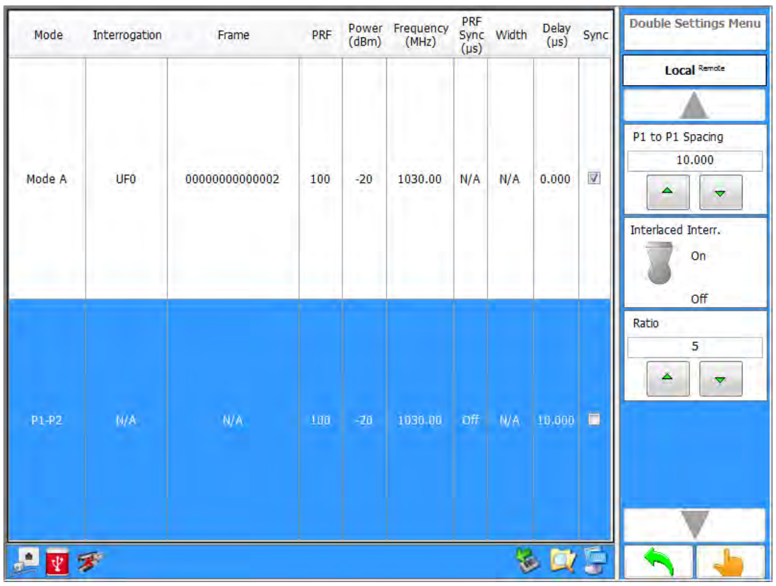



**Figure 1.2.3 - 115 Transponder Double Interrogation Double Settings Softkey Menu**

| Screen Components | Description |
|---|---|
| **P1 to P2 Spacing Field** | Defines the time delay between P1 and P2 for the selected interrogation. |
| **Interlaced Interr Toggle Switch** | Enables/disables interlaced mode for the selected interrogation. |
| **Ratio** | Defines the interlace ratio between the first interrogation and the second. For example, if the user enters an interlaced ratio of 2, the second interrogation is transmitted every other interrogation period of the first. |

#### 3.5.5.1.2 Transponder Double Interrogation Pulse Settings Screen

This screen is used to define Double Interrogation Pulse parameters. The type of Interrogation to be performed should be selected on the Transponder Double Interrogation (Settings) Screen (Section 3.5.5.1) before navigating to this screen.

**NOTE: THE LAYOUT OF THIS SCREEN DEPENDS ON THE TYPE OF INTERROGATION MODE SELECTED. THIS SECTION DOES NOT INCLUDE SCREEN EXAMPLES OF ALL SUPPORTED INTERROGATION MODES; EXAMPLE SCREENS ARE PROVIDED FOR DEFINITION PURPOSES AS NEEDED.**

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Double Interrogation > Double Interrogation Mode Softkey > Action: Select Interrogation > Pulse Settings Softkey

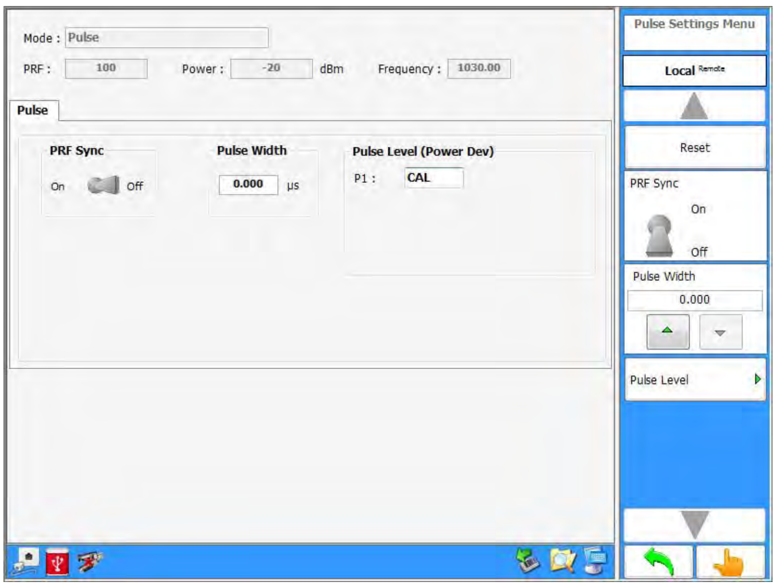



**Figure 1.2.3 - 116 Transponder Double Interrogation (Pulse) Pulse Settings Screen**

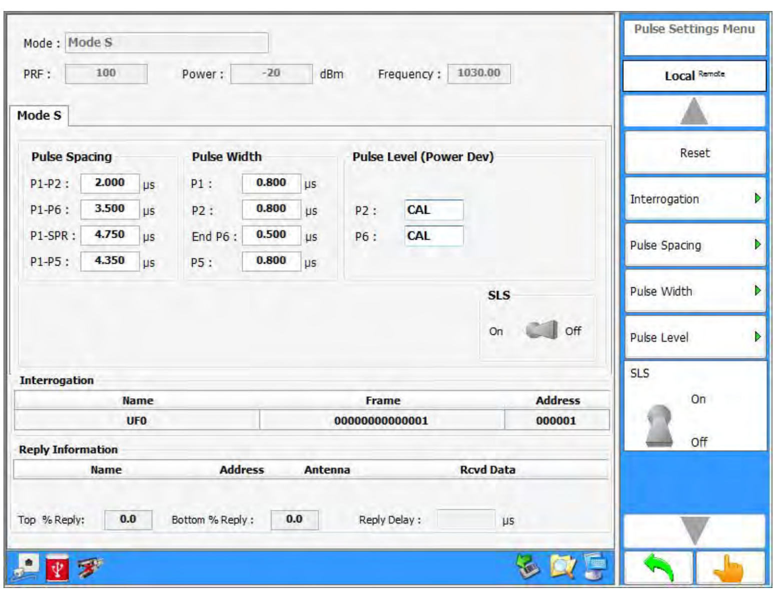



**Figure 1.2.3 - 117 Transponder Double Interrogation (Mode S) Pulse Settings Screen**

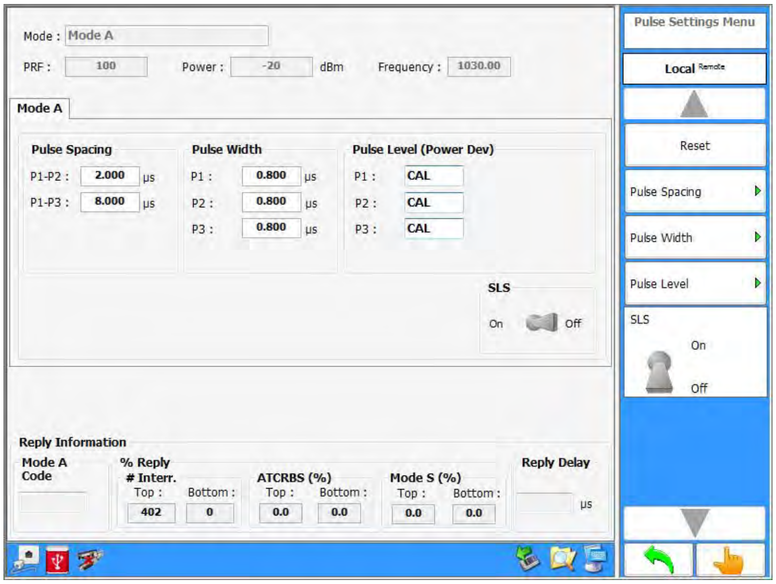



**Figure 1.2.3 - 118 Transponder Double Interrogation (Mode A) Pulse Settings Screen**

| Screen Components | Description |
|---|---|
| **Mode Menu** | Displays the type of interrogation defined on the Transponder Double Interrogation (Settings) Screen (Section 3.5.5.1). |
| **PRF Field** | Displays the pulse repetition rate (Pulse Repetition Frequency) defined on the Transponder Double Interrogation (Settings) Screen (Section 3.5.5.1). |
| **Power Field** | Defines the Power Level defined on the Transponder Double Interrogation (Settings) Screen (Section 3.5.5.1). |
| **Frequency Field** | Defines the frequency defined on the Transponder Double Interrogation (Settings) Screen (Section 3.5.5.1). |
| **PRF Sync Toggle Switch** | Allows the user to sync the PRF of the first transmission with the second. Only available for P1-P2, Pulse or DME interrogations. |
| **Pulse Spacing Fields** | Selects the Pulse Spacing. Parameters can also be defined using the Pulse Spacing Softkey Menu. P1-P2 Pulse Spacing is enabled on the Pulse Spacing Softkey Menu. |
| **Pulse Width Fields** | Defines the Pulse Width for P1, P2 and P3. Parameter can also be defined using the Pulse Width Softkey Menu. |
| **Pulse Level (Power Dev) Fields** | Selects the Pulse Level (Power Dev) for P1, P2 and P3. Parameter can also be defined using the Pulse Level Softkey Menu. |
| **Power Dev Field** | Defines the Antenna Power Deviation between the top and bottom antenna. |
| **Time Field** | Defines the Antenna Time Deviation between the top and bottom antenna. |
| **SLS Toggle Switch** | Turns the Side Lobe Suppression (SLS) pulse on the SUPP Connector ON or OFF. |

| Screen Components | Description |
|---|---|
| **Interrogation Fields** | Displays message data defined on the Interrogation Table (Mode S) Interrogation Softkey Menu (Section 3.5.6.1.2.1). |
| **Reply Information Fields** | These fields display data contained in the intruder reply message. |
| **Reset Softkey** | Pressing this softkey resets current user screen settings. |
| **Interrogation Softkey** | Accesses the Mode S Interrogation Softkey Menu. |

#### 3.5.5.1.2.1 Transponder Double Interrogation Mode S Softkey Menu

This screen is used to set the data message for Mode S Interrogation for the selected interrogation. Interrogation values are edited using the Softkey Menu.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Double Interrogation > Double Interrogation Mode Softkey > Action: Select Interrogation > Interrogation Softkey > Frame Details Softkey

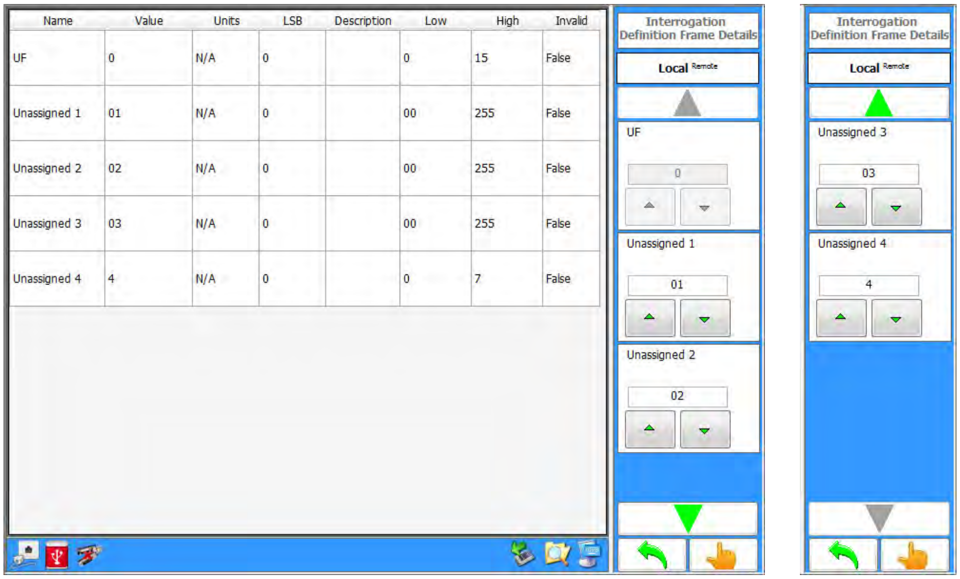



**Figure 1.2.3 - 119 Transponder Double Interrogation Mode S Softkey Menu**

### 3.5.5.2 Transponder Double Interrogation Instrument Settings Softkey Menu

This screen is similar to the Single Interrogation Instrument Settings Softkey Menu. Refer to Section 3.5.4.3, Single Interrogation Test Instrument Settings Softkey Menu for a description.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Double Interrogation > Instrument Settings Softkey

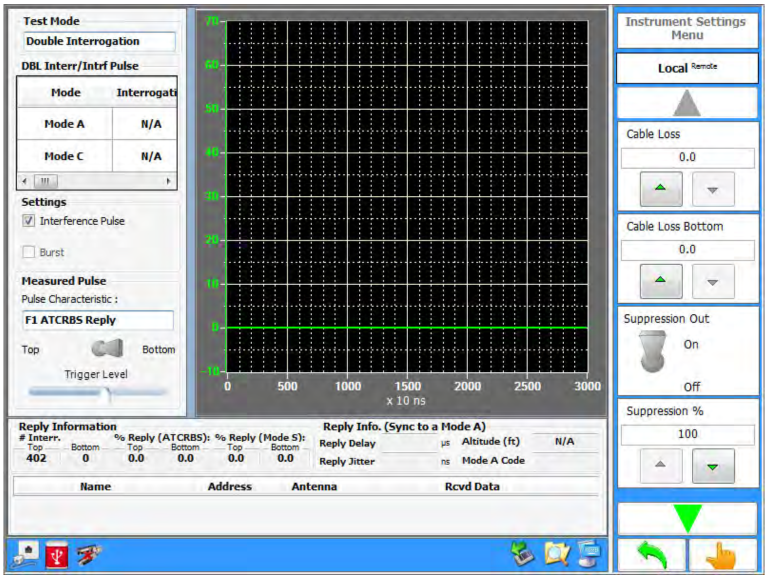



**Figure 1.2.3 - 120 Transponder Double Interrogation Instrument Settings Softkey Menu**

### 3.5.5.3 Transponder Double Interrogation Interference Pulse Screen

This screen is similar to the Single Interrogation Interference Pulse Screen. Refer to Section 3.5.4.4, Single Interrogation Test Interference Pulse Screen for a description.

**SCREEN SEQUENCE**

Transponder Screen > Transponder Test Softkey > Test Mode: Double Interrogation > Interference Pulse Softkey

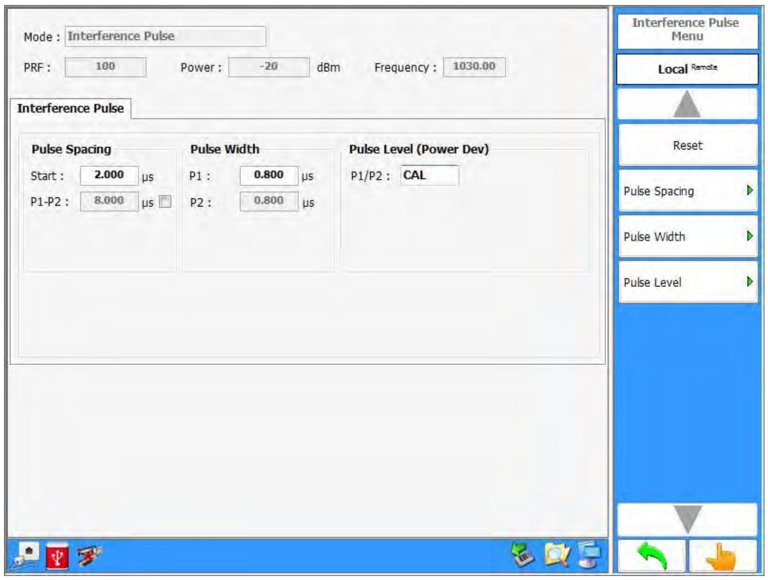



**Figure 1.2.3 - 121 Transponder Double Interrogation Interference Pulse Screen**

### 3.5.5.4 Transponder Double Interrogation Measured Pulse Softkey Menu

This screen is similar to the Single Interrogation Measured Pulse Softkey Menu. Refer to Section 3.5.4.5, Single Interrogation Test Measured Pulse Softkey Menu for a description.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Double Interrogation > Measured Pulse Softkey

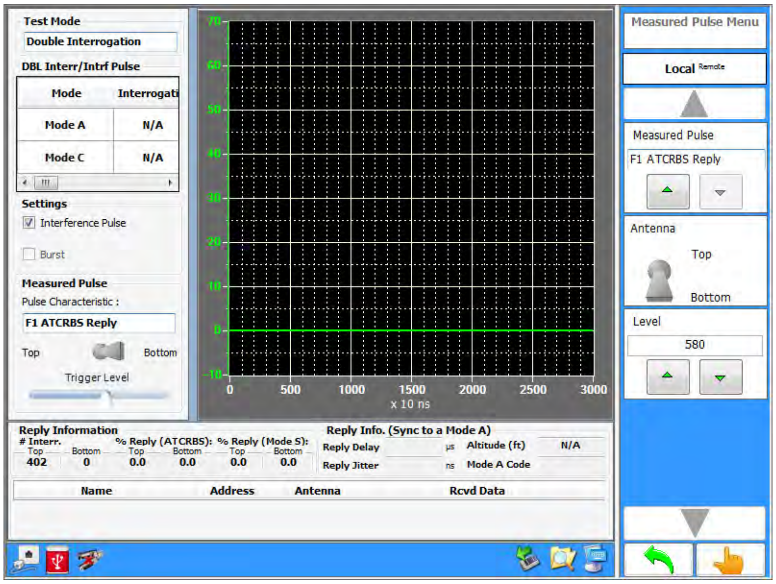



**Figure 1.2.3 - 122 Transponder Double Interrogation Measured Pulse Softkey Menu**

### 3.5.5.5 Transponder Double Interrogation Receiver Summary Screen

This screen is similar to the Single Interrogation Receiver Summary Screen. Refer to Section 3.5.4.6, Single Interrogation Test Receiver Summary Screen for a description.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Double Interrogation > Receiver Summary Softkey

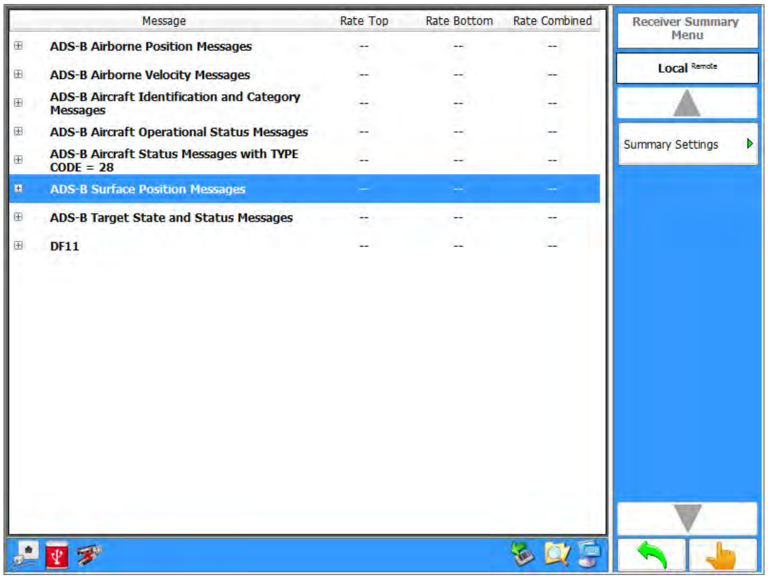



**Figure 1.2.3 - 123 Transponder Double Interrogation Receiver Summary Screen**

### 3.5.6 TRANSPONDER INTERROGATION TABLE SCREEN

The Transponder Interrogation Table Screen allows the user to define the Interrogation table. The Interrogation Table can contain 1 to 32 interrogations. When the interrogations are enabled, the Unit transmits from the first entry on the table to the last entry. Each PRF cycle the Unit transmits one interrogation and advances to the next table entry. Once the last entry is transmitted the Unit loops back to the first entry.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Interrogation Table

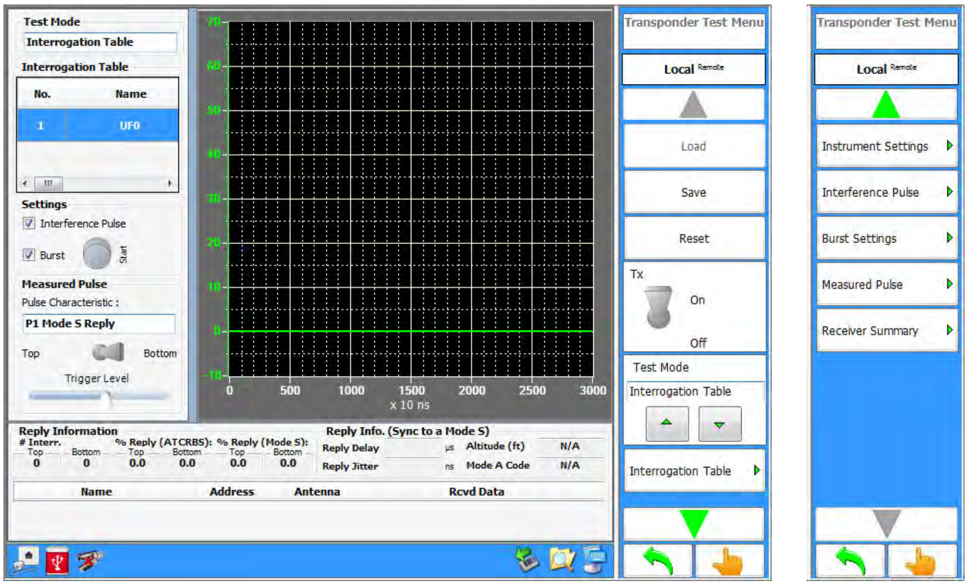



**Figure 1.2.3 - 124 Transponder Interrogation Table Screen**

| Screen Components | Description |
|---|---|
| **Test Mode** | Selects the Test Mode. |
| **Interrogation Table** | Displays the interrogations selected to be included in the transmission. Interrogations are configured on the Transponder Interrogation Table (Definition) Screen (Section 3.5.6.1). |
| **Interference Pulse Tick Box** | This tick box turns interference pulse on or off. Interference Pulse Settings are defined on the Transponder Interrogation Table Interference Pulse Settings Screen (Section 3.5.6.3). |
| **Burst Tick Box** | Turns burst mode on or off. Burst Settings are defined on the Transponder Interrogation Table Burst Settings Screen (Section 3.5.6.4). |
| **Start Button** | Starts/stops burst operation. Button is available when Burst mode is selected. |
| **Pulse Characteristic** | Selects the pulse to be measured. |
| **Antenna Selection** | Selects the Antenna from which the pulse is measured (Top or Bottom). |
| **Trigger Level** | Selects the scope trigger level. A precise trigger level can be defined using the Trigger Field on the Instrument Settings Softkey Menu. |

| Screen Components | Description |
|---|---|
| **Reply Information** | These fields display data contained in the intruder reply message. If any interrogation table entry is a non-standard All-Call format, percent reply measurements may be invalid. |
| **Load Softkey** | Allows the user to load a saved Transponder Test. |
| **Save Softkey** | Allows the user to save the current test setup to a file. |
| **Reset Softkey** | Resets the Transponder Test. |
| **Tx Toggle Switch** | Starts (On) or /Stops (Off) transmissions. |
| **Interrogation Table Softkey** | Accesses the Interrogation Table Settings Screen. Refer to Section 3.5.6.1, Transponder Interrogation Table (Definition) Screen.4 |
| **Instrument Settings Softkey** | Accesses the Instrument Settings Screen. Refer to Section 3.5.6.2, Transponder Interrogation Table Instrument Settings Softkey Menu. |
| **Interference Pulse Softkey** | This softkey is displayed when Interference Pulse is enabled.<br>Accesses the Interference Pulse Settings Screen. Refer to Section 3.5.6.3, Transponder Interrogation Table Interference Pulse Settings Screen. |
| **Burst Softkey** | This softkey is displayed when Burst Mode is enabled.<br>Accesses the Burst Settings Screen. Refer to Section 3.5.6.4, Transponder Interrogation Table Burst Settings Screen. |
| **Receiver Summary Softkey** | Accesses the Receiver Summary Screen. Refer to Section 3.5.6.6, Transponder Interrogation Table Receiver Summary Screen. |

**NOTE: IF THE INTERROGATION TABLE SCENARIO IS COMPOSED OF TWO OR MORE INTERROGATIONS OF THE SAME TYPE (ATCRBS OR MODE S) THE TEST SET ALONE WILL DETERMINE WHICH REPLY IS USED FOR MEASUREMENT PURPOSES (TIMING, FREQUENCY AND POWER) INDEPENDENT OF THE "SYNC" SELECTION ENTERED IN THE "INTERROGATION TABLE MENU" SCREEN.**

### 3.5.6.1 Transponder Interrogation Table (Definition) Screen

This screen is used to define the Transponder Interrogation Table. By default, the Interrogation Table always contains at least one interrogation.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Interrogation Table > Interrogation Table (Definition) Softkey

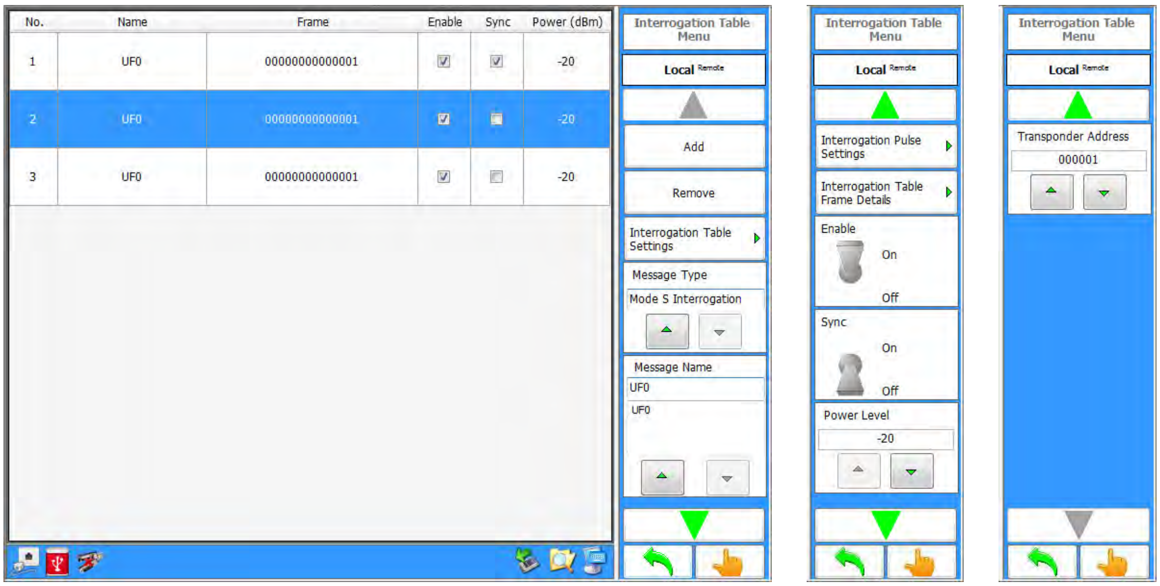



**Figure 1.2.3 - 125 Transponder Interrogation Table (Definition) Screen**

| Screen Components | Description |
|---|---|
| **Number** | System assigned when interrogations are added or deleted from the interrogation table. |
| **Name** | Displays the message name. This field is defined using the Message Name Menu on the softkey menu. |
| **Frame** | Displays the frame data defined for each interrogation. Frame Data is edited on the Interrogation Table Frame Details Screen (Section 3.5.6.1.3). |
| **Enable (Interrogation)** | Enables/Disables the interrogation of the selected table entry.<br>Enabled/disabled using the Enable Toggle Switch on the Softkey Menu. |
| **Sync (Select)** | Selects the table entry for synchronization. The measured UUT values will be obtained from the reply associated with the interrogation selected for synchronization.<br>Enabled/disabled using the Sync Toggle Switch on the Softkey Menu. |
| **Power Field** | Displays the power level of the interrogation. This value is defined using the Power Level field on the softkey menu. |
| **Add Softkey** | Allows user to add an interrogation to the table. |
| **Remove Softkey** | Deletes the selected interrogation from the table. |

| Screen Components | Description |
|---|---|
| **Interrogation Table Settings Softkey** | Accessed the Interrogation Settings Softkey Menu. Refer to Section 3.5.6.1.1, Interrogation Table Settings Softkey Menu. |
| **Message Type Menu** | Selects the message type for the selected table entry. |
| **Message Name Menu** | Selects the name of the message for the selected table entry. |
| **Interrogation Pulse Settings Softkey** | Accesses the Interrogation Pulse Settings Screen. Refer to Section 3.5.6.1.2, Interrogation Table Interrogation Pulse Settings Screen. |
| **Interrogation Table Frame Details Softkey** | Accesses the Interrogation Table Frame Details Screen. Refer to Section 3.5.6.1.3, Interrogation Table Frame Details Screen. |
| **Power Level Field** | Defines the antenna power for the top antenna of the selected table entry. The power level range depends of the power mode selected. |
| **Transponder Address Field** | Defines the Transponder address of the selected table entry. |

### 3.5.6.1.1 Interrogation Table Settings Softkey Menu

This screen accesses interrogation PRF and Frequency settings. Values are defined by selecting a row from the table on the Main Display Area and using the Settings SoftKeys to edit the settings.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Interrogation Table > Interrogation Table (Definition) Softkey > Interrogation Table Settings Softkey

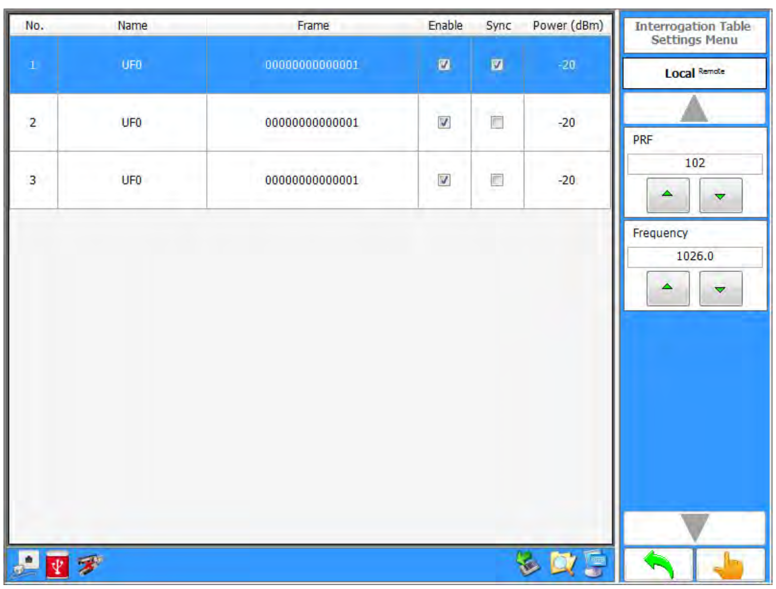



**Figure 1.2.3 - 126 Interrogation Table Settings Softkey Menu**

### 3.5.6.1.2 Interrogation Table Interrogation Pulse Settings Screen

This screen is similar to the Double Interrogation Pulse Settings Screen. Refer to Section 3.5.5.1.2, Transponder Double Interrogation Pulse Settings Screen for a description.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Interrogation Table > Interrogation Table (Definition) Softkey > Interrogation Pulse Settings Softkey

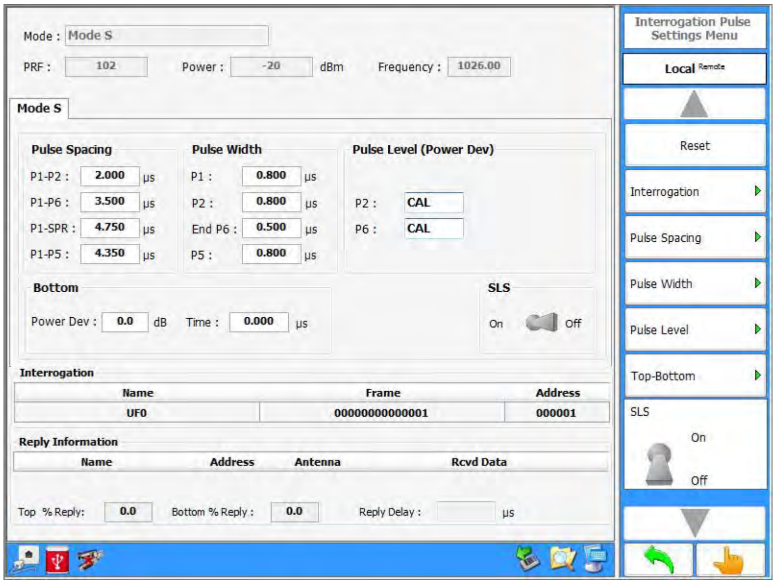



**Figure 1.2.3 - 127 Interrogation Table Pulse Settings Screen**

#### 3.5.6.1.2.1 Interrogation Table (Mode S) Interrogation Softkey Menu

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Interrogation Table > Interrogation Table (Definition) Softkey > Interrogation Pulse Settings Softkey > Interrogation Softkey

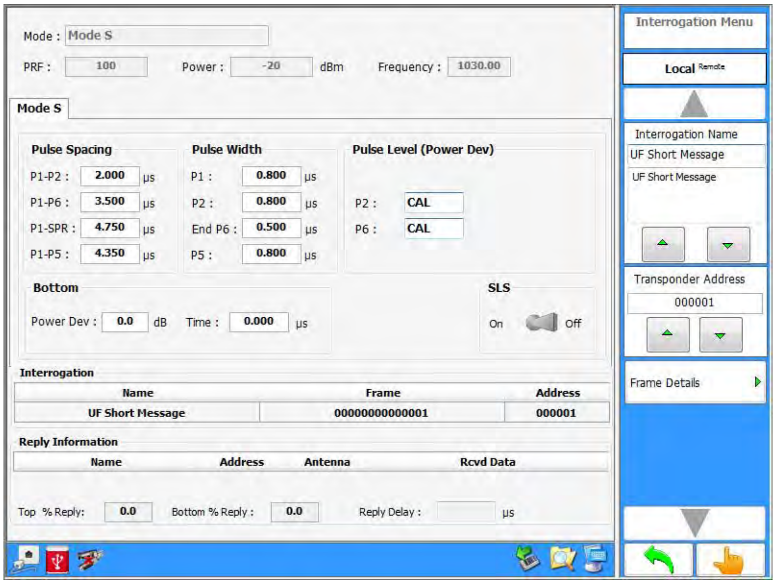



**Figure 1.2.3 - 128 Interrogation Table (Mode S) Interrogation Softkey Menu**

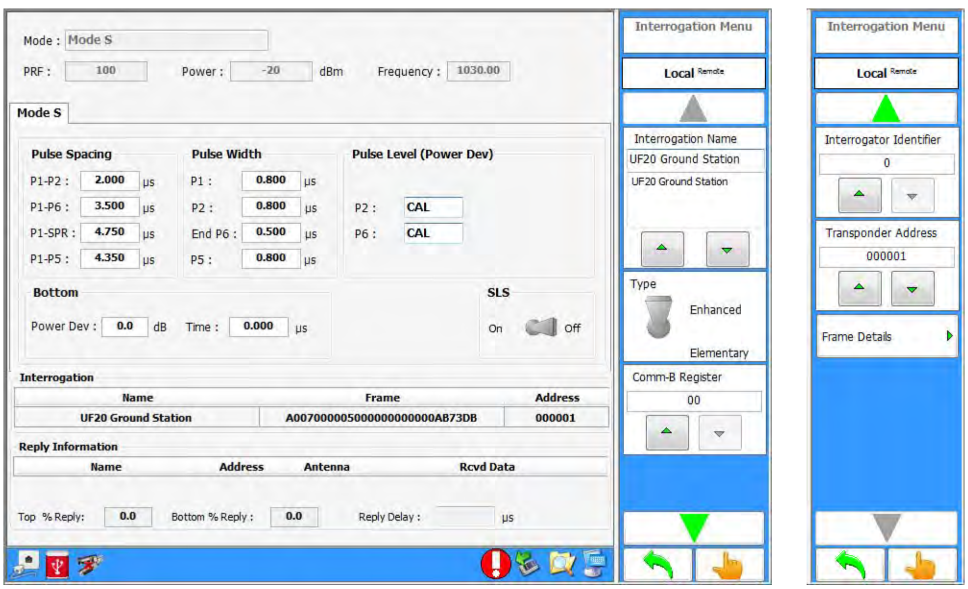



**Figure 1.2.3 - 129 Interrogation Table Interrogation Pulse Settings - UF20 Ground Station**

### 3.5.6.1.2.2 Interrogation Table Interrogation Pulse Frame Details Screen

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Interrogation Table > Interrogation Table (Definition) Softkey > Interrogation Pulse Settings Softkey > Interrogation Softkey > Frame Details Softkey

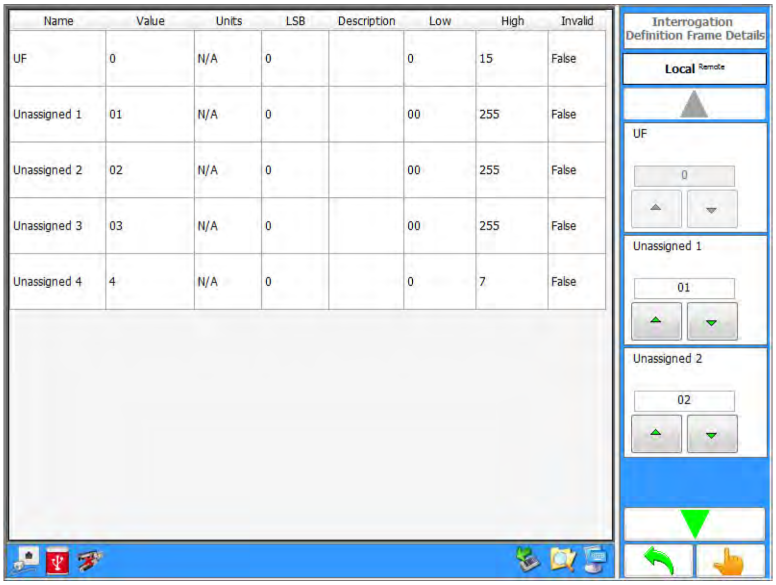



**Figure 1.2.3 - 130 Interrogation Table Interrogation Pulse Frame Details Screen**

### 3.5.6.1.3 Interrogation Table Frame Details Screen

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Interrogation Table > Interrogation Table (Definition) Softkey > Interrogation Table Frame Details Softkey

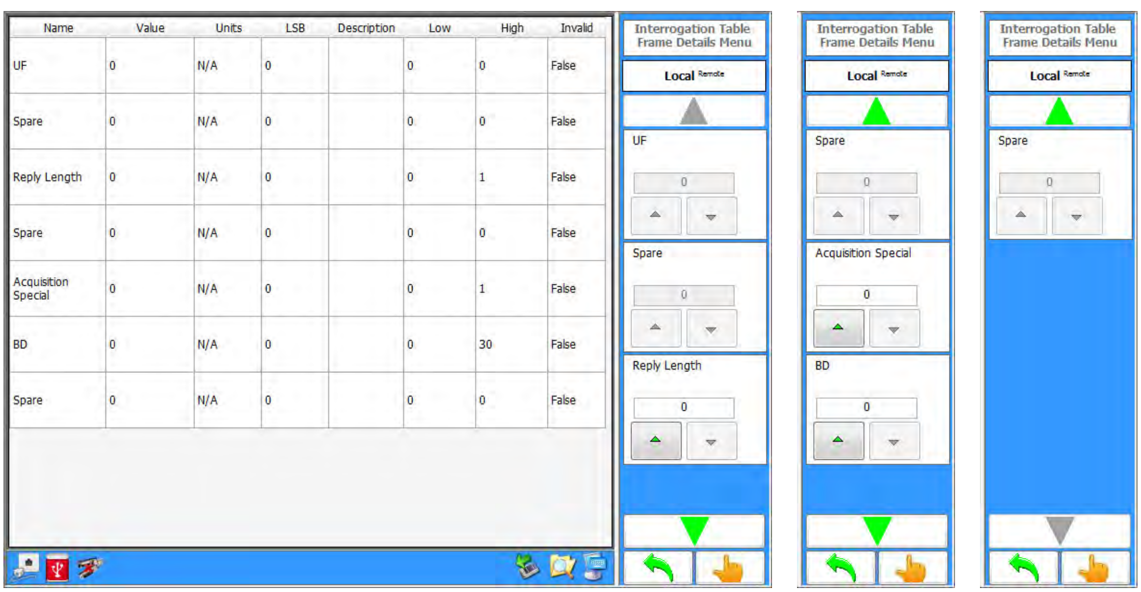



**Figure 1.2.3 - 131 Interrogation Table Frame Details Screen**

### 3.5.6.2 Transponder Interrogation Table Instrument Settings Softkey Menu

This screen is similar to the Single Interrogation Instrument Settings Softkey Menu. Refer to Section 3.5.4.3, Single Interrogation Test Instrument Settings Softkey Menu for a description.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Interrogation Table > Instrument Settings Softkey

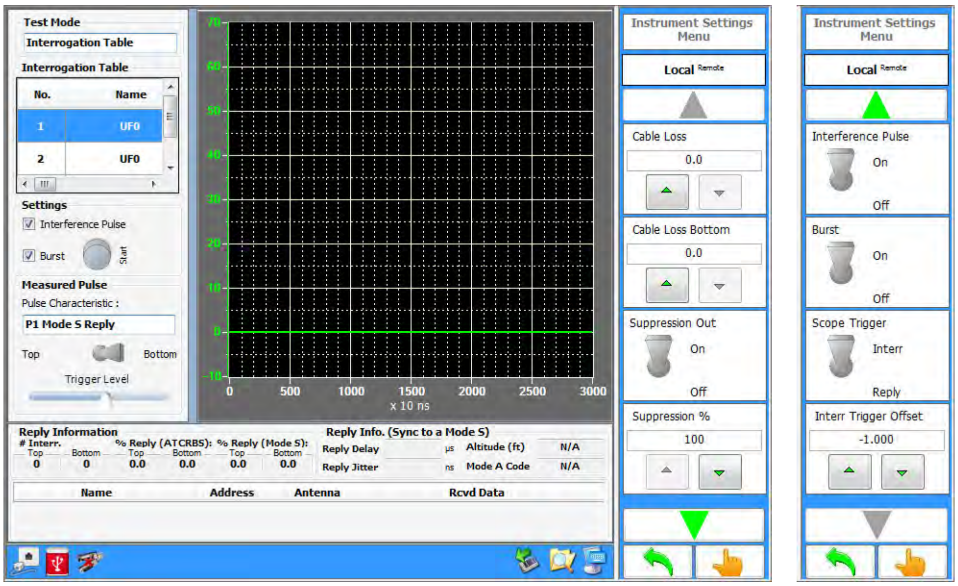



**Figure 1.2.3 - 132 Transponder Interrogation Table Instrument Settings Softkey Menu**

### 3.5.6.3 Transponder Interrogation Table Interference Pulse Settings Screen

This screen is similar to the Single Interrogation Interference Pulse Screen. Refer to Section 3.5.4.4, Single Interrogation Test Interference Pulse Screen for a description.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Interrogation Table > Interference Pulse Softkey

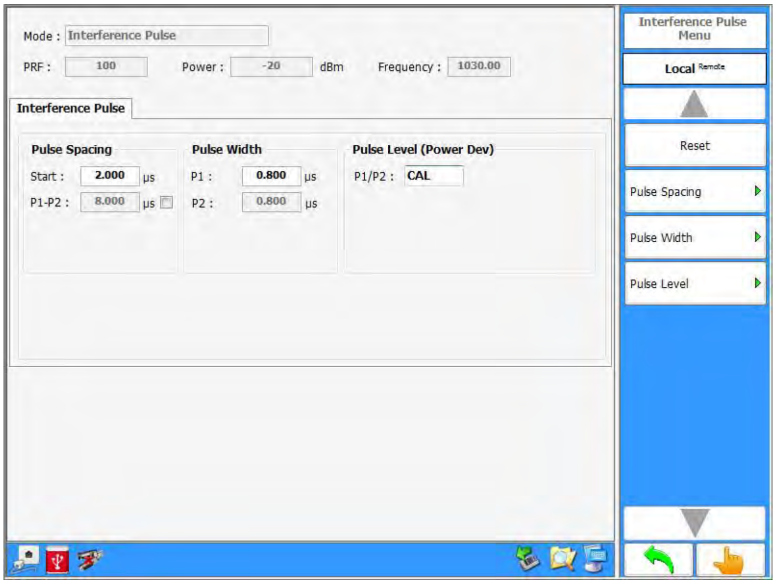



**Figure 1.2.3 - 133 Transponder Interrogation Table Interference Pulse Screen**

### 3.5.6.4 Transponder Interrogation Table Burst Settings Screen

Burst Mode transmits the interrogations defined in the Interrogation Table. If the Interrogation Table only has three interrogations defined and the burst count is five, then the following sequence of interrogations are transmitted: Entry1, Entry2, Entry3, Entry1 and Entry2. If a burst spacing greater than 0 is defined, then the next burst sequence begins with Entry1 again.

For example, if the Interrogation Table has ten interrogations and the burst count is five, then the first five interrogations are transmitted; on the next burst the same five are transmitted. If the burst count is 0, every time Burst Start is performed the number of interrogations in the burst count are transmitted.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Interrogation Table > Burst Settings Softkey

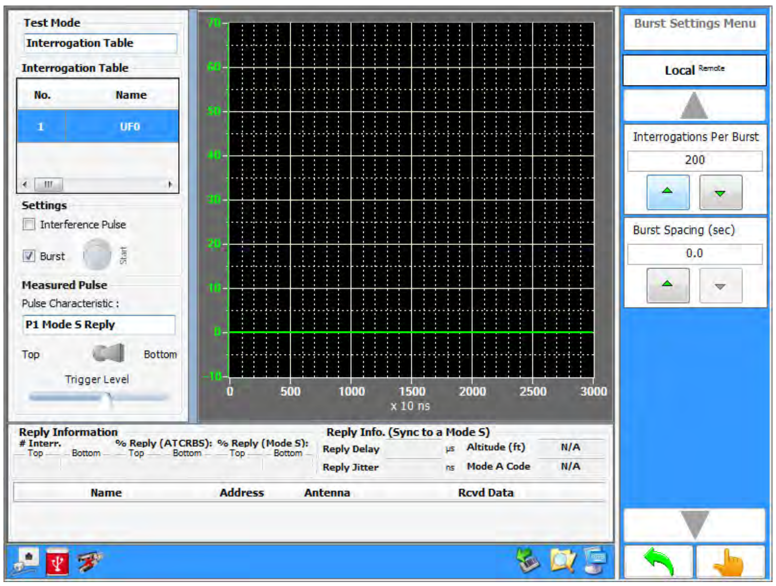



**Figure 1.2.3 - 134 Transponder Interrogation Table Burst Settings Screen**

### 3.5.6.5 Transponder Interrogation Table Measured Pulse Softkey Menu

This screen is similar to the Single Interrogation Measured Pulse Softkey Menu. Refer to Section 3.5.4.5, Single Interrogation Test Measured Pulse Softkey Menu for a description.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Interrogation Table > Interrogation Table Softkey > Measured Pulse Softkey

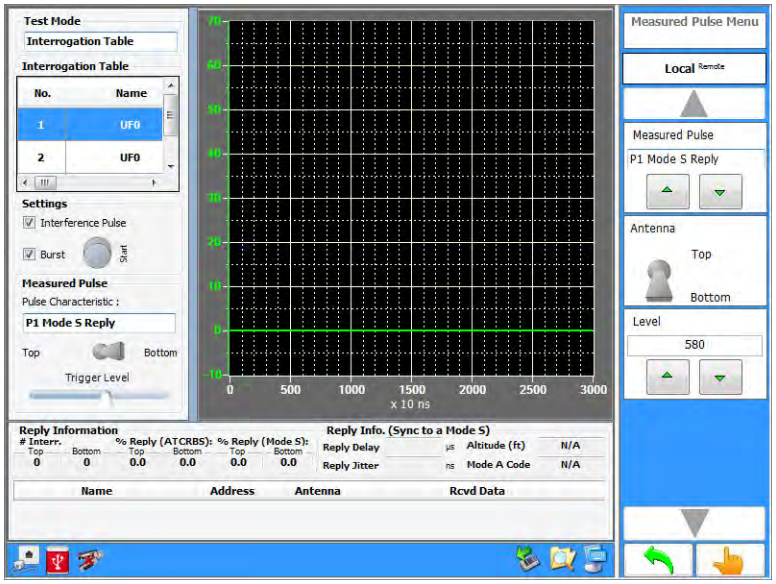



**Figure 1.2.3 - 135 Transponder Interrogation Table Measured Pulse Softkey Menu**

### 3.5.6.6 Transponder Interrogation Table Receiver Summary Screen

This screen is similar to the Single Interrogation Receiver Summary Screen. Refer to Section 3.5.4.6, Single Interrogation Test Receiver Summary Screen for a description.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Interrogation Table > Interrogation Table Softkey > Receiver Summary Softkey

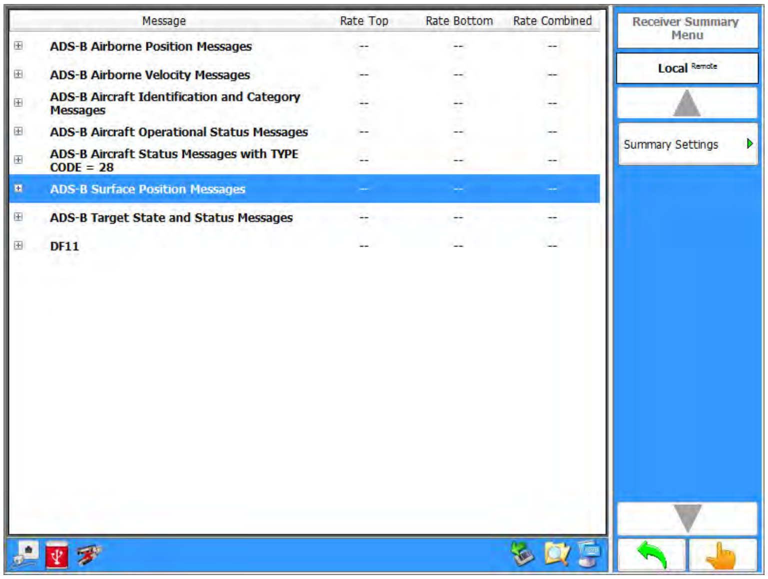



**Figure 1.2.3 - 136 Transponder Interrogation Table Receiver Summary Screen**

### 3.5.7 TRANSPONDER BLOCK TRANSMISSION SCREEN

The Transponder Block Transmission Test Mode allows the user configure the RGS-2000NG to transmit a block of 1030 interrogations.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Block Transmission

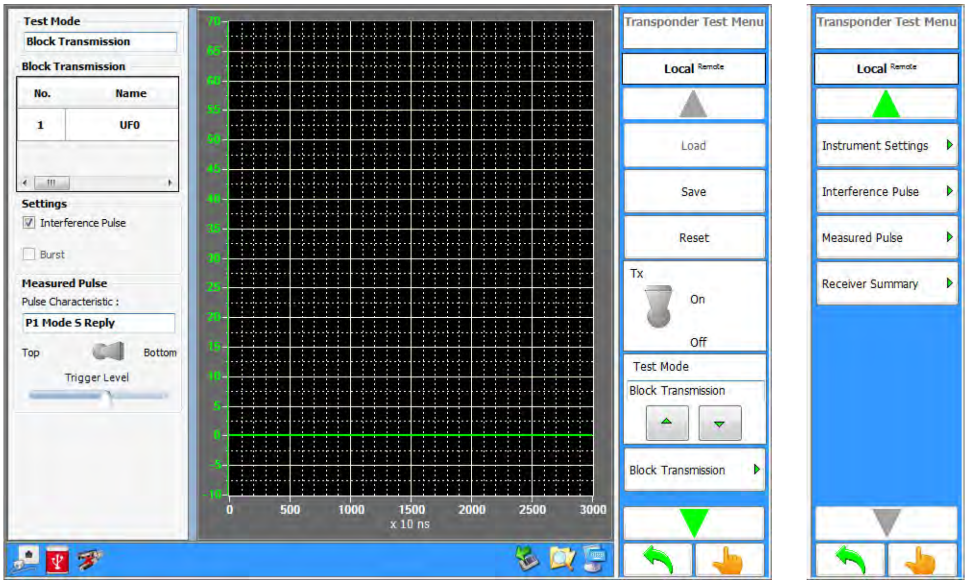



**Figure 1.2.3 - 137 Transponder Block Transmission Screen**

| Screen Components | Description |
|---|---|
| **Test Mode** | Selects the Test Mode. This parameter can also be selected on the Softkey Menu. |
| **Block Transmission** | Displays a list box of all defined transmissions. Block transmissions are defined on the TCAS Block Transmission Screen (Section 3.4.19). |
| **Settings** | |
| Interference Pulse | Turns the Interference Pulse ON/OFF (Single, Double and Interrogation Table Modes). Interference Pulse only supported on Top Antenna port.<br>Interference Pulse Settings are defined on the Interference Pulse Settings Screen (refer to Section 3.5.6.3). |
| Burst Tick Box | Not available in Block Transmissions Mode. |
| **Pulse Characteristic Menu** | Selects the pulse to be measured. |
| **Antenna Selection Toggle Switch** | Selects the Antenna from which the pulse is measured (Top or Bottom). |
| **Trigger Level Slider** | Selects the scope trigger level. A precise trigger level can be defined using the Trigger Field on the Instrument Settings Softkey Menu. |
| **Block Transmission Softkey** | Accesses the Transponder Block Transmission Screen. Refer to Section 3.4.19, TCAS Block Transmission Screen. |

| Screen Components | Description |
|---|---|
| **Tx Toggle Switch** | Selects the Start (On) or /Stop (Off) transmissions. |
| **Load Softkey** | Allows the user to load a saved Transponder Test. |
| **Save Softkey** | Allows the user to save the current test setup to a file. |
| **Reset Softkey** | Resets the current user screen settings to default values. |
| **Tx Toggle Switch** | Selects the Start (On) or /Stop (Off) transmissions. |
| **Instrument Settings Softkey** | Accesses the Transponder Block Instrument Settings Softkey Menu. Refer to Section 3.5.7.2, Transponder Block Transmission Instrument Settings Softkey Menu. |
| **Interference Pulse Softkey** | Accesses the Transponder Block Interference Pulse Screen. Refer to Section 3.5.7.3, Transponder Block Transmissions Interference Pulse Screen. |
| **Measured Pulse Softkey** | Accesses the Transponder Block Measured Pulse Screen. Refer to Section 3.5.7.4, Transponder Block Transmission Measured Pulse Softkey Menu. |
| **Receiver Summary Softkey** | Accesses the Transponder Block Receiver Summary Screen. Refer to Section 3.5.7.5, Transponder Block Transmission Receiver Summary Screen. |

### 3.5.7.1 Transponder Block Transmission Screen

This user screen allows the user to define the block transmission timing parameters.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Block Transmission > Block Transmission Softkey

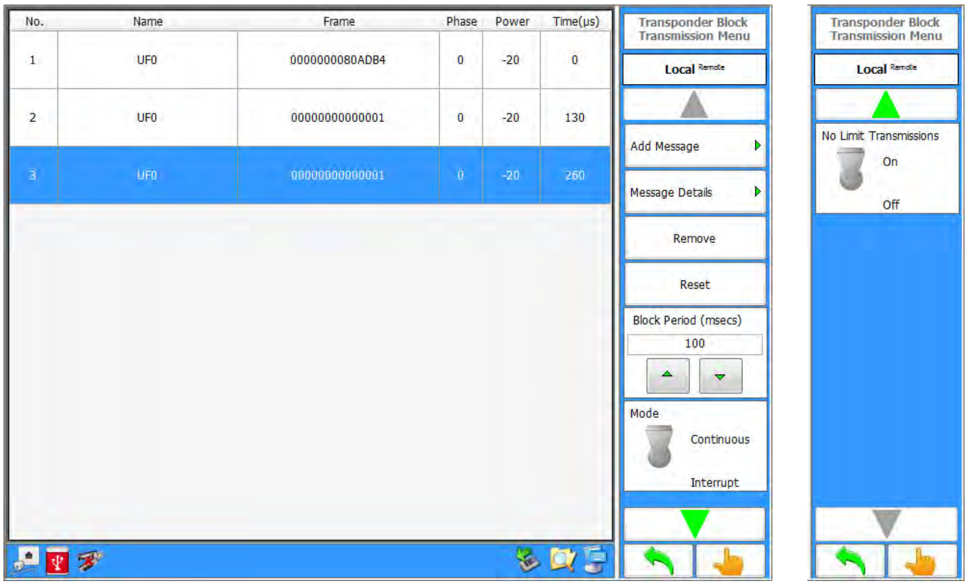



**Figure 1.2.3 - 138 Transponder Block Transmission Screen**

| Screen Components | Description |
|---|---|
| Add Message Softkey | Accesses the Transponder Block Transmission Add Message Softkey Menu. Refer to Section 3.5.7.1.1, Transponder Block Transmission Add Message Screen. |
| Message Details Softkey | Accesses the Transponder Block Transmission Message Details Softkey Menu. Refer to Section 3.5.7.1.1, Transponder Block Transmission Add Message Screen. |
| Remove Softkey | Allows the user to remove the selected message from the block. |
| Reset Softkey | Clears all block data. |
| Frame Period Field | Defines the block transmission period in ms. |
| Mode Toggle Switch | Selects the block transmission mode.<br>**NOTE:** If Interrupt is selected, Hit and Miss entries are displayed. |
| No Limit Transmissions Toggle Switch | Sets the Transponder to send an unlimited number of block transmissions. Default is ON. |

#### 3.5.7.1.1 Transponder Block Transmission Add Message Screen

This screen is similar to the TCAS Block Transmission Add Message Screen. Refer to Section 3.4.19.1, TCAS Block Transmission Add Message Screen for a description.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Block Transmission > Block Transmission Softkey > Add Message Softkey

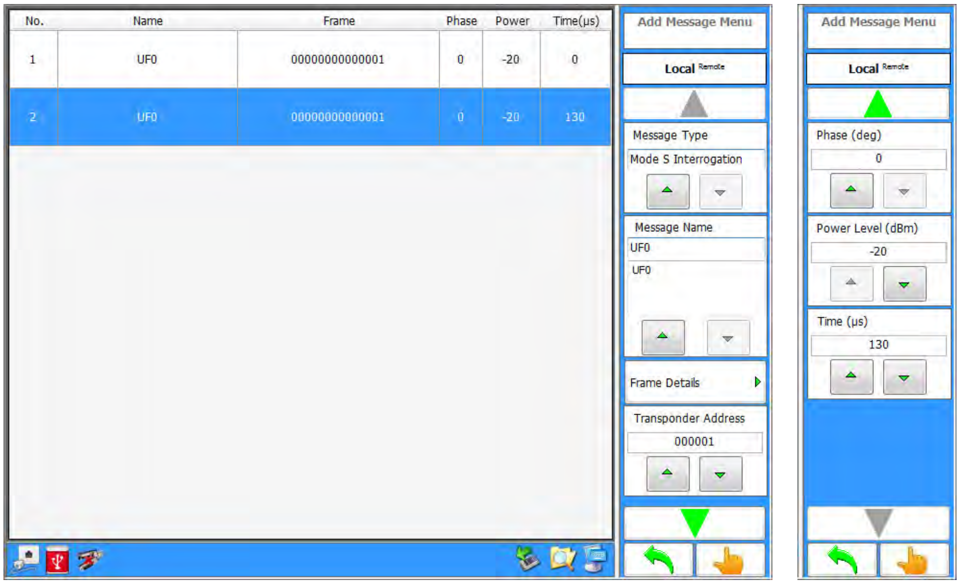



**Figure 1.2.3 - 139 Transponder Block Transmission Add Message Screen**

### 3.5.7.1.2 Transponder Block Transmission Message Details Screen

This screen is similar to the TCAS Block Transmission Message Details Screen. Refer to Section 3.4.19.3, TCAS Block Transmission Message Details Softkey Menu for a description.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Block Transmission > Block Transmission Softkey > Message Details Softkey

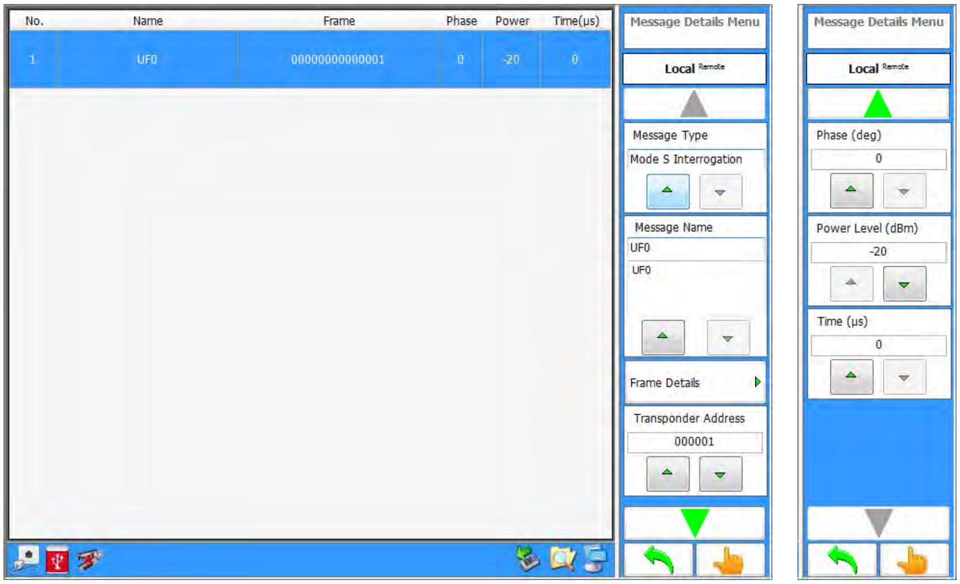



**Figure 1.2.3 - 140 Transponder Block Transmission Message Details Screen and Menus**

### 3.5.7.2 Transponder Block Transmission Instrument Settings Softkey Menu

This screen is similar to the Single Interrogation Instrument Settings Softkey Menu. Refer to Section 3.5.4.3, Single Interrogation Test Instrument Settings Softkey Menu for a description.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Block Transmission > Instrument Settings Softkey

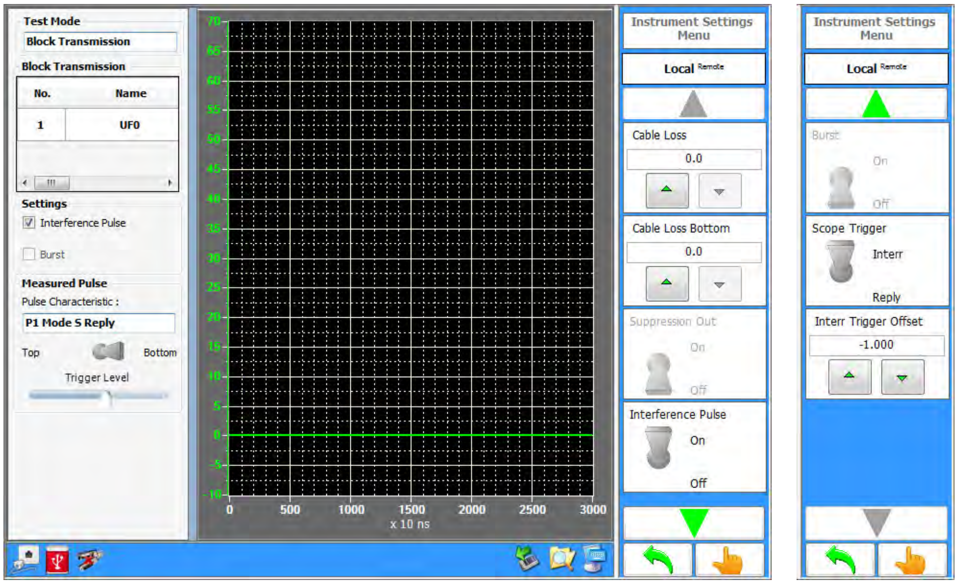



**Figure 1.2.3 - 141 Transponder Block Transmission Settings Softkey Menu**

### 3.5.7.3 Transponder Block Transmissions Interference Pulse Screen

This screen is similar to the Single Interrogation Interference Pulse Screen. Refer to Section 3.5.4.4, Single Interrogation Test Interference Pulse Screen for a description.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Block Transmission > Interference Pulse Softkey

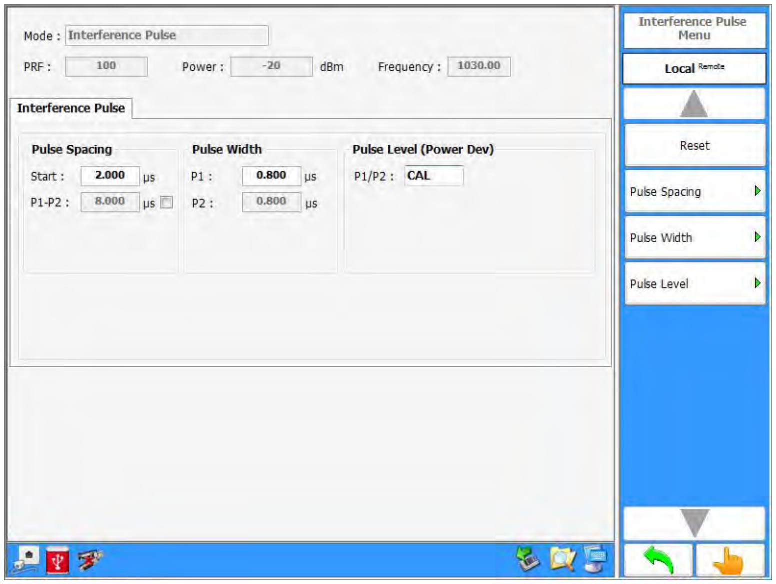



**Figure 1.2.3 - 142 Transponder Interrogation Table Interference Pulse Screen**

### 3.5.7.4 Transponder Block Transmission Measured Pulse Softkey Menu

This screen is similar to the Single Interrogation Measured Pulse Softkey Menu. Refer to Section 3.5.4.5, Single Interrogation Test Measured Pulse Softkey Menu for a description.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Block Transmission > Interrogation Table Softkey > Measured Pulse Softkey

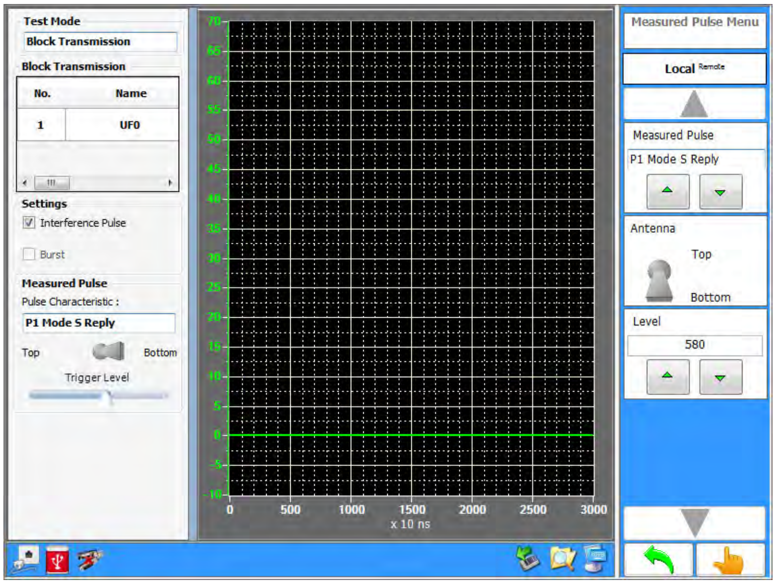



**Figure 1.2.3 - 143 Transponder Interrogation Table Measured Pulse Softkey Menu**

#### 3.5.7.5 Transponder Block Transmission Receiver Summary Screen

This screen is similar to the Single Interrogation Receiver Summary Screen. Refer to Section 3.5.4.6, Single Interrogation Test Receiver Summary Screen for a description.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Block Transmission > Interrogation Table Softkey > Receiver Summary Softkey

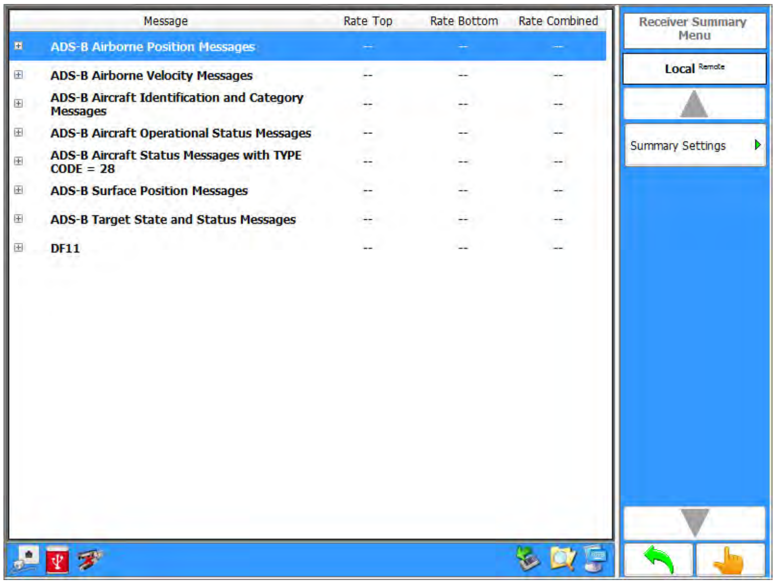



**Figure 1.2.3 - 144 Transponder Interrogation Table Receiver Summary Screen**

### 3.5.8 TRANSPONDER INTERROGATION WITH CW SCREEN

The Transponder Interrogation With CW Test Mode allows the user to configure the RGS-2000NG to transmit CW Interrogations.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Interrogation With CW

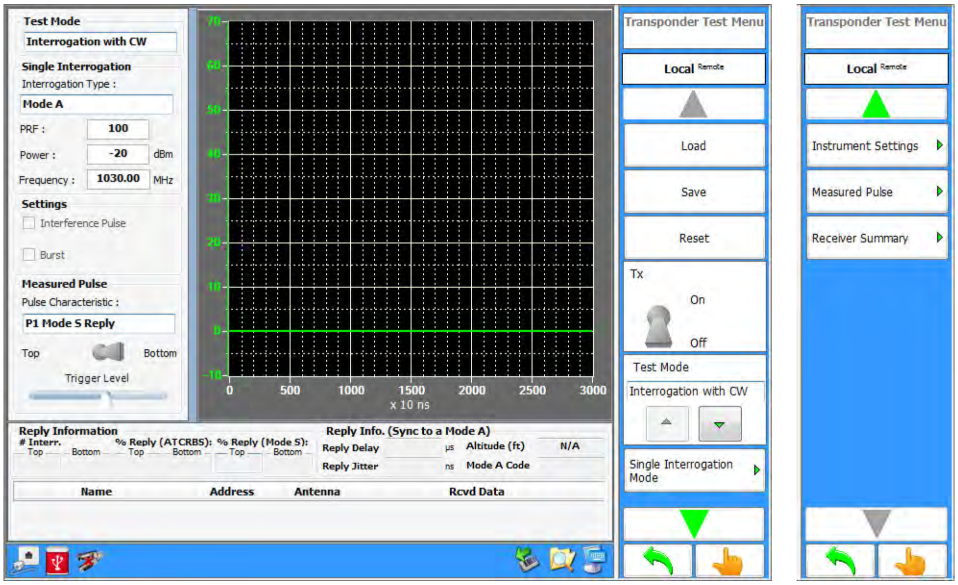


**Figure 1.2.3 - 145 Transponder Interrogation With CW Screen**

| Screen Components | Description |
|---|---|
| **Test Mode Menu** | This menu selects the test Interrogation Mode. |
| **Interrogation Type Menu** | This menu selects the Interrogation Type the Single Interrogation Mode. |
| **PRF Field** | Defines the pulse repetition rate (Pulse Repetition Frequency). |
| **Power Field** | Selects the Power. |
| **Frequency Field** | Selects the Transmitter frequency. |
| **Settings** | |
| Interference Pulse | Not available in Interrogation with CW Mode. |
| Burst Tick Box | This tick box turns burst mode on or off. Burst Settings are defined on the by pressing the Burst Settings Softkey. |
| **Pulse Characteristic Menu** | Selects the pulse to be measured. |
| **Antenna Selection Toggle Switch** | Selects the Antenna from which the pulse is measured (Top or Bottom). |
| **Trigger Level Slider** | Selects the scope trigger level. A precise trigger level can be defined using the Trigger Field on the Instrument Settings Softkey Menu. |
| **Reply Information** | These fields display data contained in the intruder reply message. |

| Screen Components | Description |
|---|---|
| **Load Softkey** | Allows the user to load a saved Transponder Test. |
| **Save Softkey** | Allows the user to save the current test setup to a file. |
| **Reset Softkey** | Resets the current user screen settings to default values. |
| **Tx Toggle Switch** | Selects the Start (On) or /Stop (Off) transmissions. |
| **Single Interrogation Mode Softkey** | Accesses the Interrogation with CW Single Interrogation Mode Screen. Refer to Section 3.5.8.1, Transponder Interrogation With CW Single Interrogation (Definition) Screen. |
| **Instrument Settings Softkey** | Accesses the Interrogation with CW Instrument Settings Softkey Menu. Refer to Section 3.5.8.2, Transponder Interrogation With CW Instrument Settings Screen. |
| **Measured Pulse Softkey** | Accesses the Interrogation with CW Measured Pulse Screen. Refer to Section 3.5.8.3, Transponder Interrogation With CW Measured Pulse Softkey Menu. |
| **Receiver Summary Softkey** | Accesses the Interrogation with CW Receiver Summary Screen. Refer to Section 3.5.8.4, Transponder Interrogation With CW Receiver Summary Screen. |

### 3.5.8.1 Transponder Interrogation With CW Single Interrogation (Definition) Screen

This screen is similar to the Single Interrogation Test Mode Screen. Refer to Section 3.5.4.2, Transponder Single Interrogation Mode (Definition) Screen for a description.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Interrogation With CW > Single Interrogation Mode Softkey

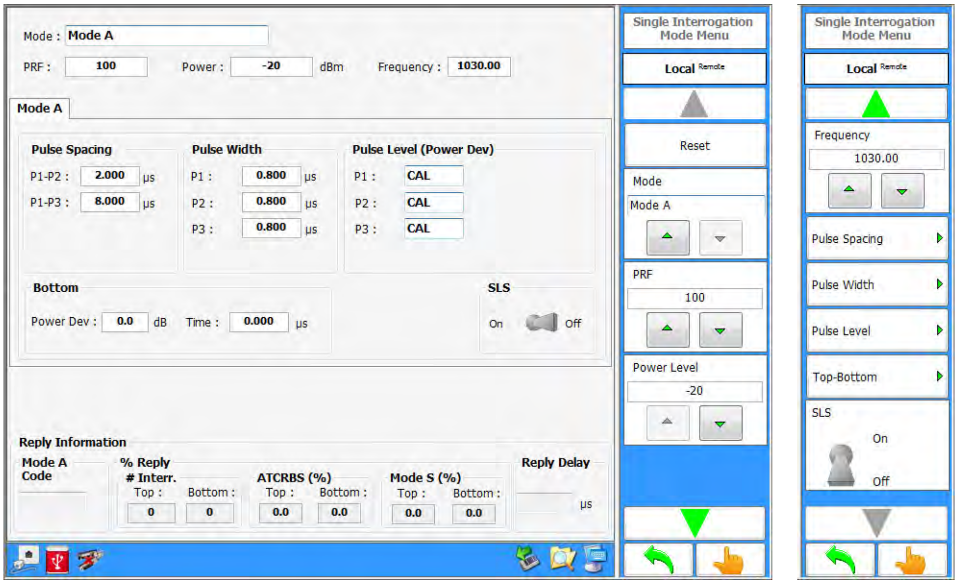



**Figure 1.2.3 - 146 Transponder Interrogation with CW (Mode A) Softkey Menu**

### 3.5.8.2 Transponder Interrogation With CW Instrument Settings Screen

This screen is similar to the Transponder Interrogation Table Instrument Settings Screen. Refer to Section 3.5.6.2, Transponder Interrogation Table Instrument Settings Softkey Menu for a description.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Interrogation With CW > Instrument Settings Softkey

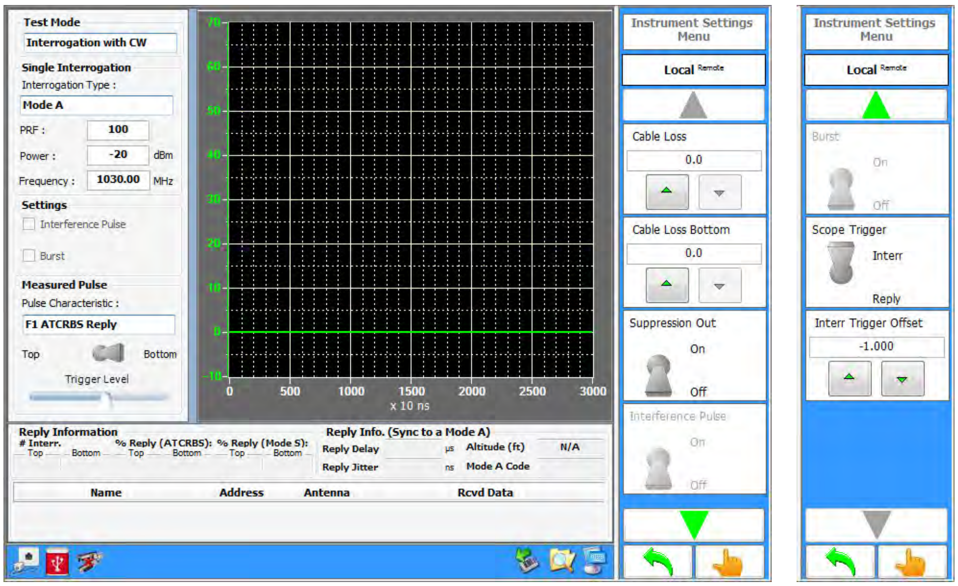



**Figure 1.2.3 - 147 Transponder Interrogation With CW Instruments Settings Screen**

### 3.5.8.3 Transponder Interrogation With CW Measured Pulse Softkey Menu

This screen is similar to the Single Interrogation Measured Pulse Softkey Menu. Refer to Section 3.5.4.5, Single Interrogation Test Measured Pulse Softkey Menu for a description.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Interrogation With CW > Measured Pulse Softkey

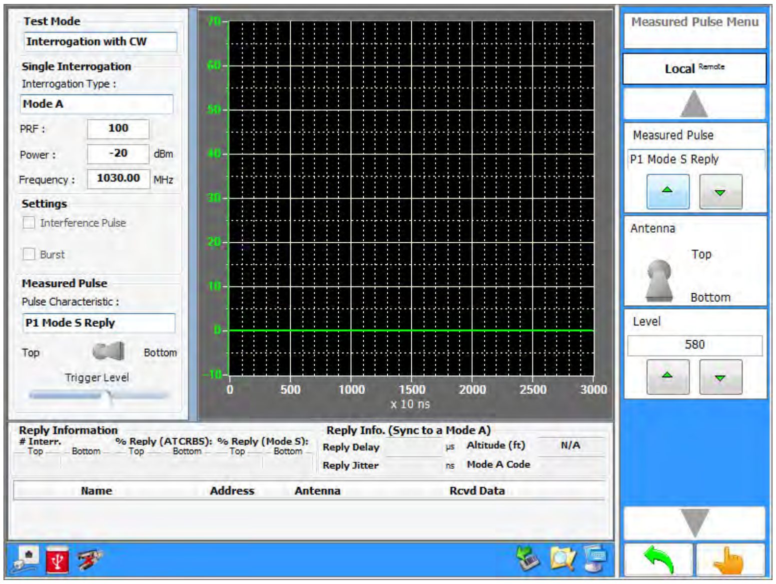



**Figure 1.2.3 - 148 Transponder Interrogation With CW Measured Pulse Softkey Menu**

### 3.5.8.4 Transponder Interrogation With CW Receiver Summary Screen

This screen is similar to the Single Interrogation Receiver Summary Screen. Refer to Section 3.5.4.6, Single Interrogation Test Receiver Summary Screen for a description.

**SCREEN SEQUENCE:**

Transponder Screen > Transponder Test Softkey > Test Mode: Interrogation With CW > Receiver Summary Softkey

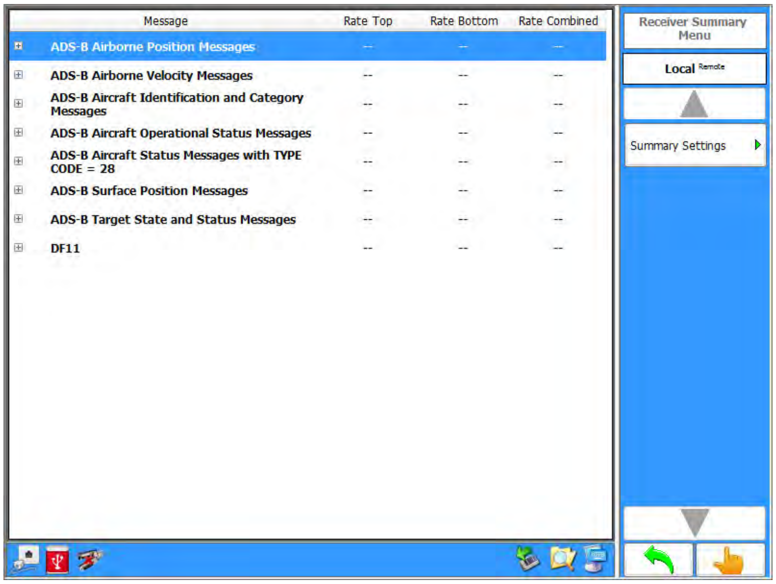



**Figure 1.2.3 - 149 Transponder Interrogation With CW Receiver Summary Screen**

## 3.6 UAT TEST MODE

UAT Test Mode allows the user to select between the Settings, Receiving Station, Receiver or Scenario Screens for UAT testing.

**SCREEN SEQUENCE:**

Home Screen > UAT Softkey

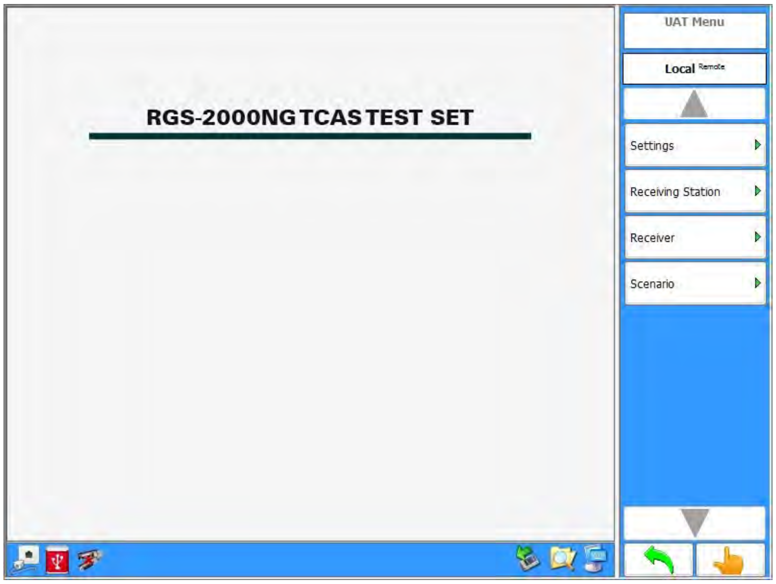



**Figure 1.2.3 - 150 UAT Screen**

| Screen Components | Description |
|---|---|
| **Settings Softkey** | Accesses the UAT Settings Screen. Refer to Section 3.6.1, UAT Settings Screen. |
| **Receiving Station Softkey** | Accesses the Receiving Station Screen. Refer to Section 3.6.3, UAT Receiving Station Screen. |
| **Receiver Softkey** | Accesses the UAT Receiver Screen. Refer to Section 3.6.4, UAT Receiver Screen. |
| **Scenario Softkey** | Accesses the UAT Scenario Screen. Refer to Section 3.6.11, UAT Scenario Screen. |

### 3.6.1 UAT SETTINGS SCREEN

The UAT Settings Screen allows the user to configure the Transmitter, Receiver and Antenna Simulator modules in the Test Set for UAT tests. The UAT Settings Screen is used for testing and troubleshooting the Test Set. When performing UAT Unit testing, the UAT Settings Screen should only be used to set the individual RF Generator frequencies. Other entires may not persist after exiting the Settings Menu.

**SCREEN SEQUENCE:**

UAT Screen > Settings Softkey

**NOTE: THE UAT SETTINGS SCREEN IS INTENDED FOR CALIBRATION AND TROUBLESHOOTING PURPOSES ONLY. PARAMETERS DEFINED ON THE UAT SETTINGS SCREEN DO NOT PERSIST UPON EXITING THE SCREEN. THE UNIT REVERTS BACK TO DEFAULT SETTINGS WHEN USER LEAVES THE UAT SETTINGS SCREEN.**

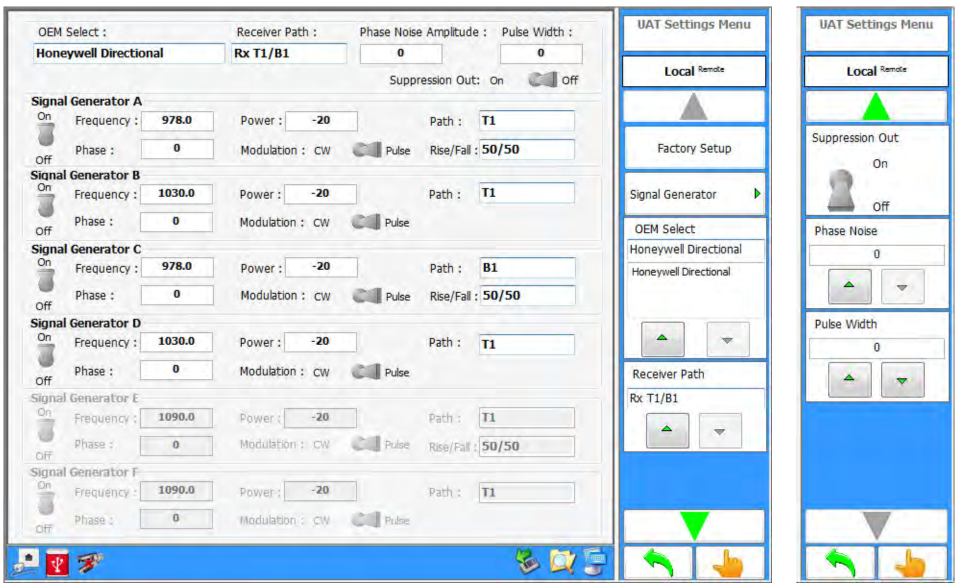



**Figure 1.2.3 - 151 UAT Settings Screen**

| Screen Components | Description |
|---|---|
| **OEM Select Menu** | Selects the OEM phase tables to be used during the test. This is an option enabled field. |
| **Receiver Path Menu** | Selects the receiver path for the top and bottom receiver.<br>Chamber is selected when the Unit is working with an RF Amplifier (Chamber) Test Set option.<br>The Receiver Path is automatically switched to Combiner for Collins Magnitude. |
| **Phase Noise Amplitude Field** | Defines the amount of phase noise to apply to the transmissions. |
| **Pulse Width Field** | Increases or decreases the pulse width of 1090 reply messages. The numeric value is ±100 ns. |
| **ON/OFF Toggle Switch** | Enables/disables the Transmitter. |
| **Frequency Field** | Selects the Transmitter frequency. |
| **Power Field** | Sets the Transmitter power. |

| Screen Components | Description |
|---|---|
| **Path Menu** | Selects the Transmitter Path. |
| **Phase Field** | Defines the output phase for the generator according to the selected OEM. |
| **Modulation** | Selects the generator Modulation. |
| **Rise/Fall Menu** | Selects the Rise/Fall. Generator A, C and E only. |
| **Factory Setup Softkey** | Resets all parameters on the current user screen to factory default settings. |
| **Signal Generator Softkey** | Display the Signal Generator Softkey Menu. Refer to Section 3.4.2. |
| **Suppression Out Toggle Switch** | Enables/disables the Suppression Output. |

### 3.6.2 UAT SIGNAL GENERATOR SOFTKEY MENU

This Softkey Menu is similar to the TCAS Signal Generator Softkey Menu. Refer to Section 3.4.2, TCAS Settings Signal Generator Softkey Menu for a description.

**SCREEN SEQUENCE:**

UAT Screen > Settings Softkey > Generator "X" Softkey

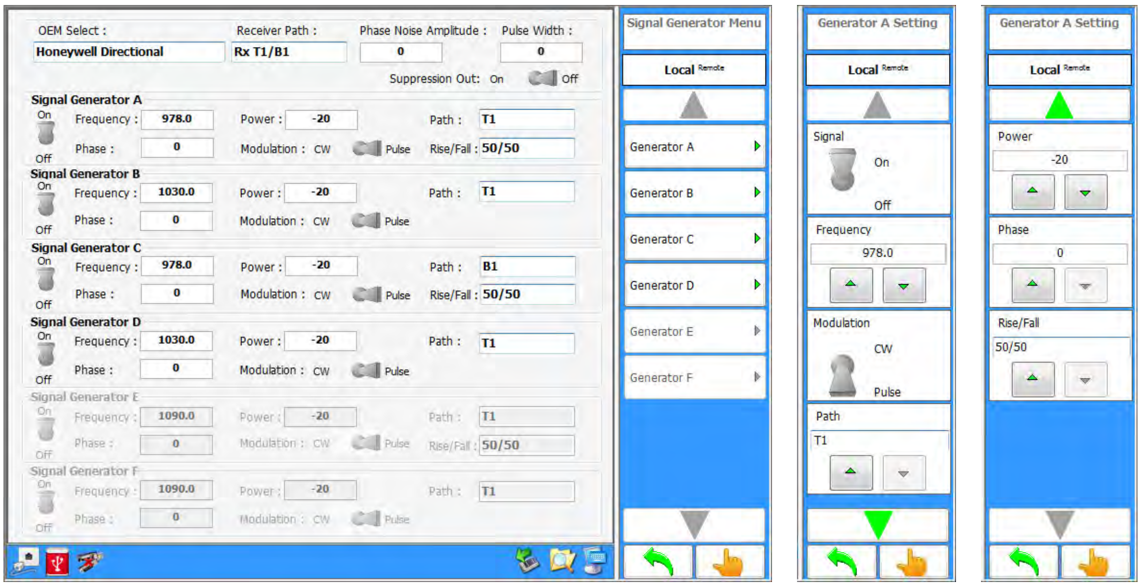



**Figure 1.2.3 - 152 UAT Signal Generator Softkey Menu**

### 3.6.3 UAT RECEIVING STATION SCREEN

The UAT Receiving Station allows the user to define the own aircraft position information.

**SCREEN SEQUENCE:**

UAT Screen > Receiving Station Softkey

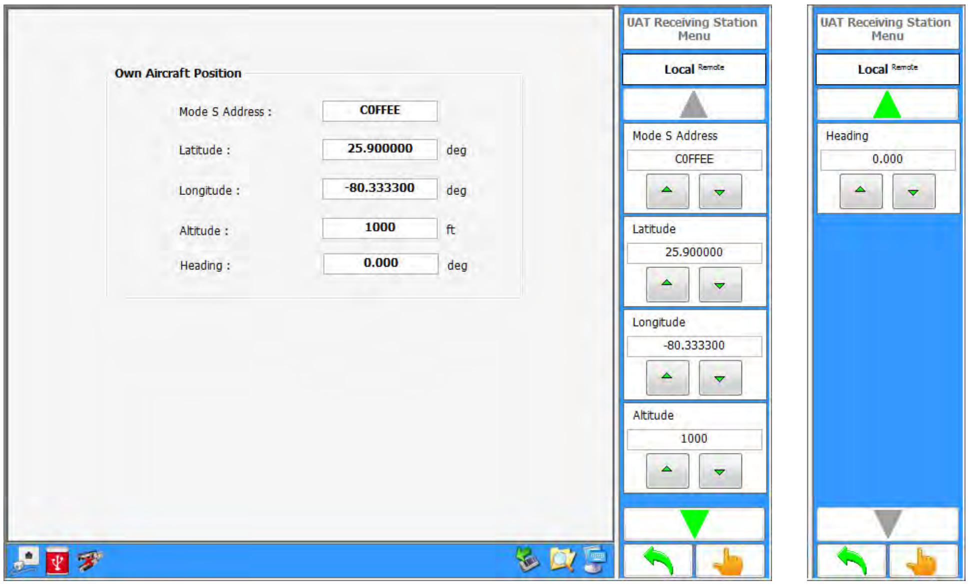



**Figure 1.2.3 - 153 UAT Receiving Station Screen**

| Screen Components | Description |
|---|---|
| **Mode S Address Field** | Defines the own aircraft Mode S Address (Hexadecimal). |
| **Latitude Field** | Defines the own aircraft latitude . |
| **Longitude Field** | Defines the own aircraft longitude. |
| **Altitude Field** | Defines the own aircraft altitude. |
| **Heading Field** | Defines the own aircraft heading. |

### 3.6.4 UAT RECEIVER SCREEN

The UAT Receiver Screen displays the transmissions from the UUT and the Test Set.

The screen displays the last 8 receptions: blue lines are receptions from the UUT; green lines are receptions from the Test Set.

When performing an export, the Test Set generates a SDF (Compact Database File) and exports the file to the selected file location. All the DF17 position, velocity and identification messages are decoded.

**SCREEN SEQUENCE:**

UAT Screen > Receiver Softkey

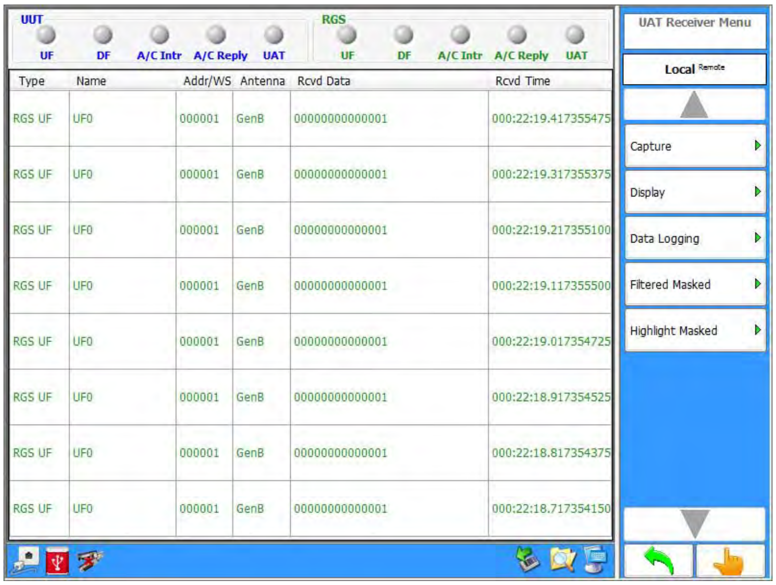



**Figure 1.2.3 - 154 UAT Receiver Screen**

| Screen Components | Description | | |
|---|---|---|---|
| **LEDs** | Displays the status of reception from the UUT and/or Test Set. | | |
| | LED | UF | UF Interrogation |
| | | DF | DF Reply |
| | | A/C Intr | ATCRBS Interrogation |
| | | A/C Replay | ATCRBS Reply |
| **Capture Softkey** | Accesses the Capture Softkey Menu. Refer to Section 3.6.5, UAT Receiver Capture Softkey Menu. | | |
| **Display Softkey** | Accesses the Display Softkey Menu. Refer to Section 3.6.6, UAT Receiver Display Softkey Menu | | |
| **Data Logging Softkey** | Accesses the Data Logging Softkey Menu. Refer to Section 3.6.7, UAT Receiver Data Logging Softkey Menu | | |
| **Filtered Masked Softkey** | Accesses the Filtered Masked Softkey Menu. Refer to Section 3.6.8, UAT Filtered Masked Softkey Menu | | |
| **Highlight Masked Softkey** | Accesses the Highlight Masked Softkey Menu. Refer to Section 3.6.10, UAT Highlight Masked Screen | | |

### 3.6.5 UAT RECEIVER CAPTURE SOFTKEY MENU

This Softkey Menu is similar to the TCAS Filtered Capture Softkey Menu. Refer to Section 3.4.9, TCAS Capture Softkey Menu for a description.

**SCREEN SEQUENCE:**

UAT Screen > Receiver Softkey > Capture Softkey

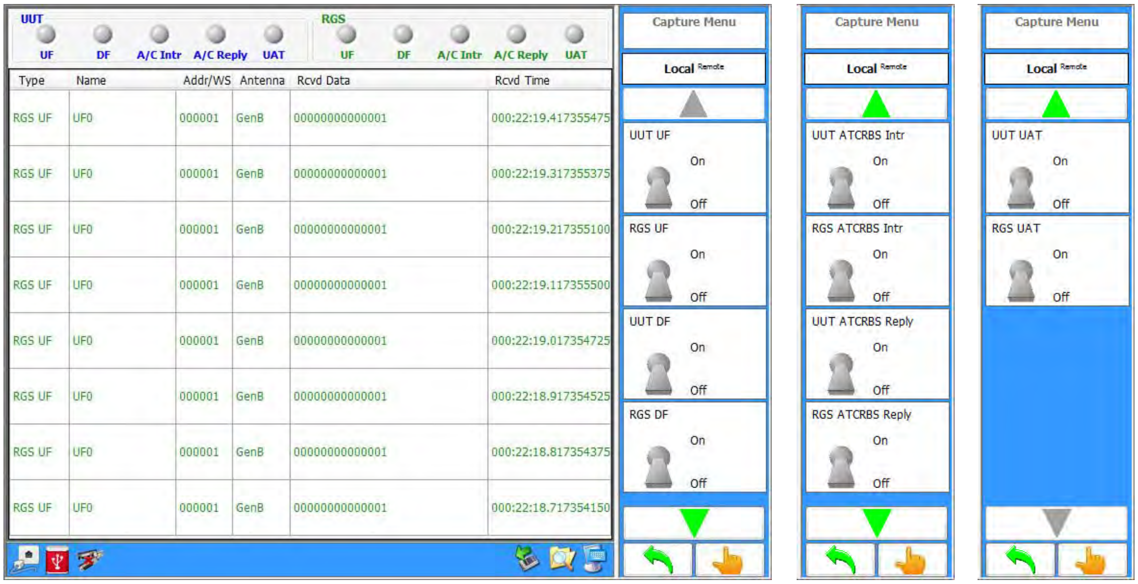



**Figure 1.2.3 - 155 UAT Receiver Capture Softkey Menu**

### 3.6.6 UAT RECEIVER DISPLAY SOFTKEY MENU

This Softkey Menu is similar to the TCAS Receiver Display Softkey Menu. Refer to Section 3.4.10, TCAS Receiver Display Softkey Menu for a description.

**SCREEN SEQUENCE:**

UAT Screen > Receiver Softkey > Display Softkey

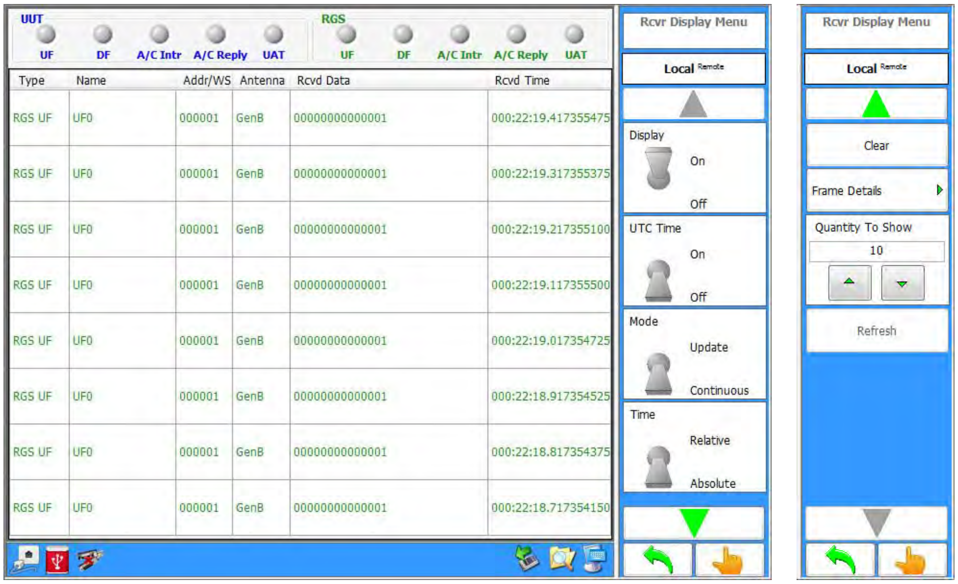



**Figure 1.2.3 - 156 UAT Receiver Display Softkey Menu**

### 3.6.7 UAT RECEIVER DATA LOGGING SOFTKEY MENU

This Softkey Menu is similar to the TCAS Receiver Data Logging Softkey Menu. Refer to Section 3.4.11, TCAS Receiver Data Logging Softkey Menu for a description.

**SCREEN SEQUENCE:**

UAT Screen > Receiver Softkey > Data Logging Softkey

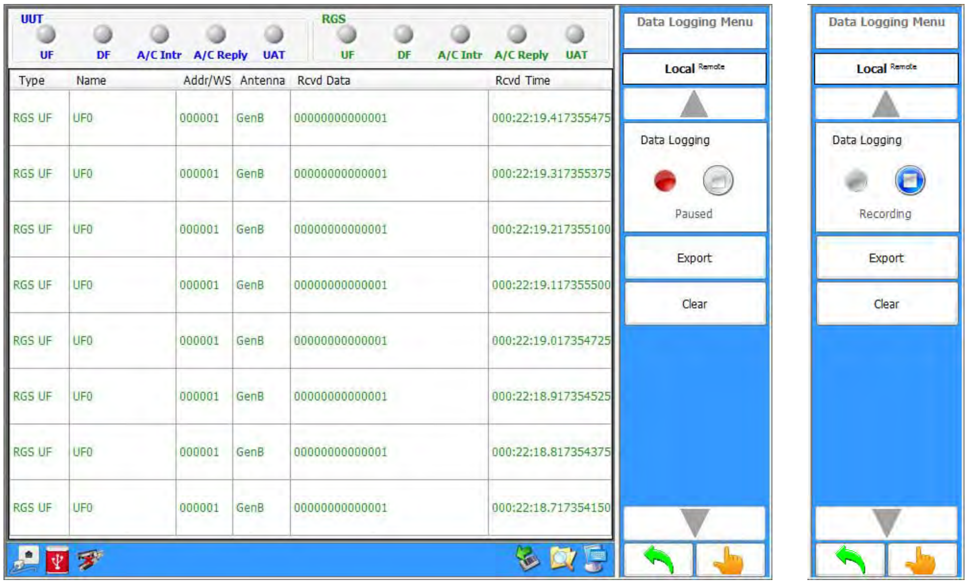



**Figure 1.2.3 - 157 UAT Receiver Data Logging Softkey Menu**

### 3.6.8 UAT FILTERED MASKED SOFTKEY MENU

This Softkey Menu is similar to the TCAS Filtered Masked Softkey Menu. Refer to Section 3.4.12, TCAS Filtered Masked Softkey Menu for a description.

**SCREEN SEQUENCE:**

UAT Screen > Receiver Softkey > Filtered Masked Softkey

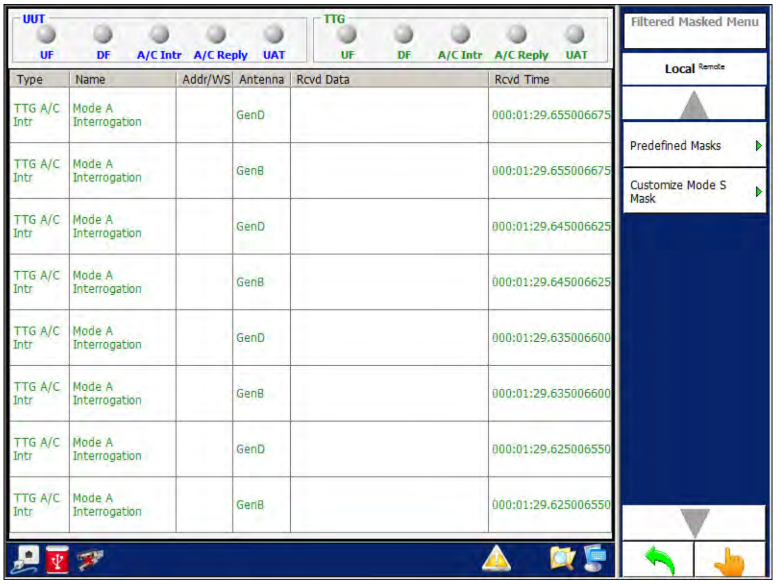



**Figure 1.2.3 - 158 UAT Filtered Masked Softkey Menu**

### 3.6.8.1 UAT Predefined Masks Screen

This screen is similar to the TCAS Predefined Masks Screen. Refer to Section 3.4.12.1, Predefined Masks Screen for a description.

**SCREEN SEQUENCE:**

UAT Screen > Receiver Softkey > Filtered Masked Softkey > Predefined Masks Softkey

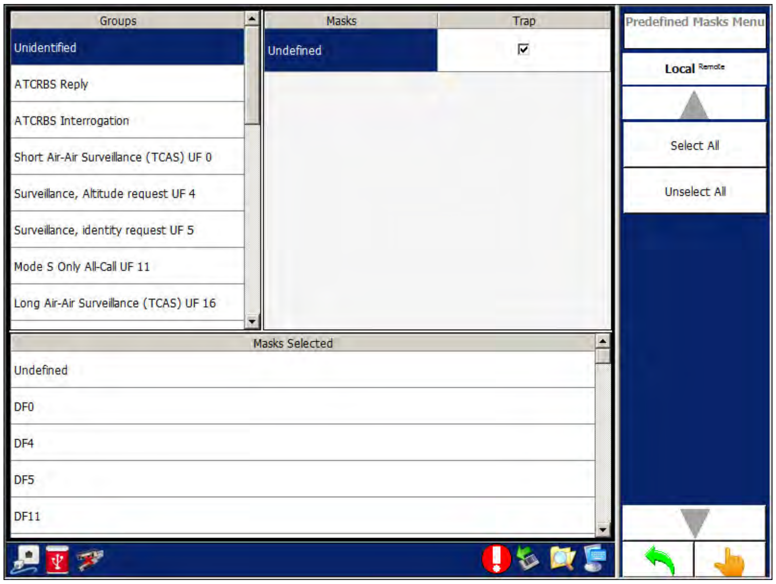



**Figure 1.2.3 - 159 UAT Receiver Filtered-Predefined Masks Screen**

### 3.6.9 UAT CUSTOMIZE MODE S MASK SCREEN

This screen is similar to the TCAS Customize Mode S Masks Screen. Refer to Section 3.4.12.1, Predefined Masks Screen for a description.

**SCREEN SEQUENCE:**

UAT Screen > Receiver Softkey > Filtered Masked Softkey > Customize Mode S Mask Softkey

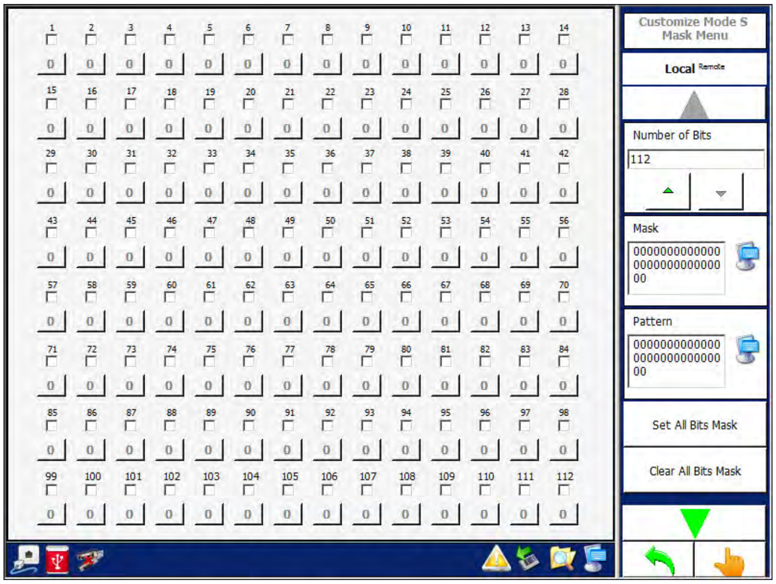



**Figure 1.2.3 - 160 UAT Receiver Customize Mode S Mask Screen**

### 3.6.10 UAT HIGHLIGHT MASKED SCREEN

This screen is similar to the TCAS Highlight Masked Screen. Refer to Section 3.4.13, Highlight Masked Screen for a description.

**SCREEN SEQUENCE:**

UAT Screen > Receiver Softkey > Highlight Masked Softkey

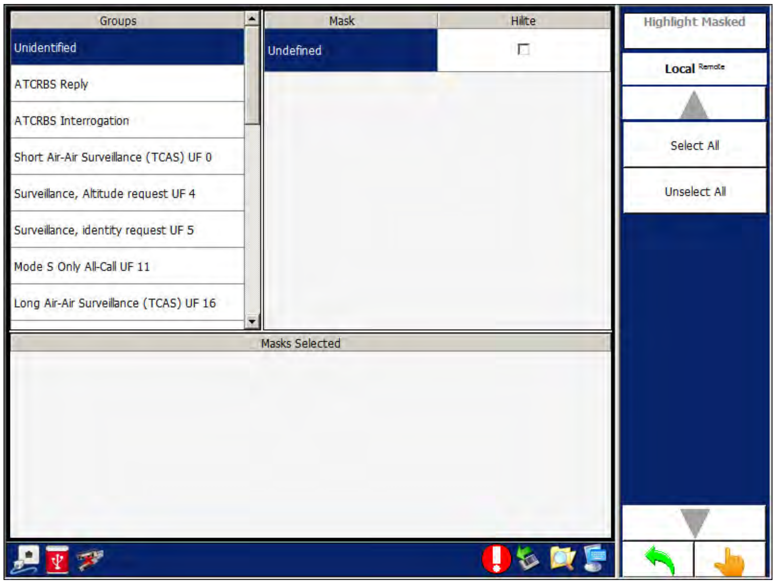



**Figure 1.2.3 - 161 UAT Highlight Masked Screen**

### 3.6.11 UAT SCENARIO SCREEN

The UAT Scenario Screen allows the user to define the UAT scenario with static and dynamic targets to perform a test on an UAT Receiver. The UAT Scenario Screen can be used to perform DO-282 MOPS testing of an UAT Unit.

**SCREEN SEQUENCE:**

UAT Screen > Scenario Softkey

**NOTE: WHEN DEFINING TARGETS AUTOMATICALLY THE TOUCH SCREEN SOFTWARE STARTS AT MSO 752 AND SPACES THE TARGETS AT THE SPECIFIED MSO STEPS.**

**NOTE: IN ORDER TO TRANSMIT UAT MESSAGES AND THE RUNTIME TO FUNCTION AFTER A START OF SCENARIO, THE TEST SET NEEDS THE PPS SIGNAL FROM THE GPS ON EXTERNAL I/O #1 OR A 1 HZ SIGNAL ON EXTERNAL I/O #1 TO FUNCTION.**

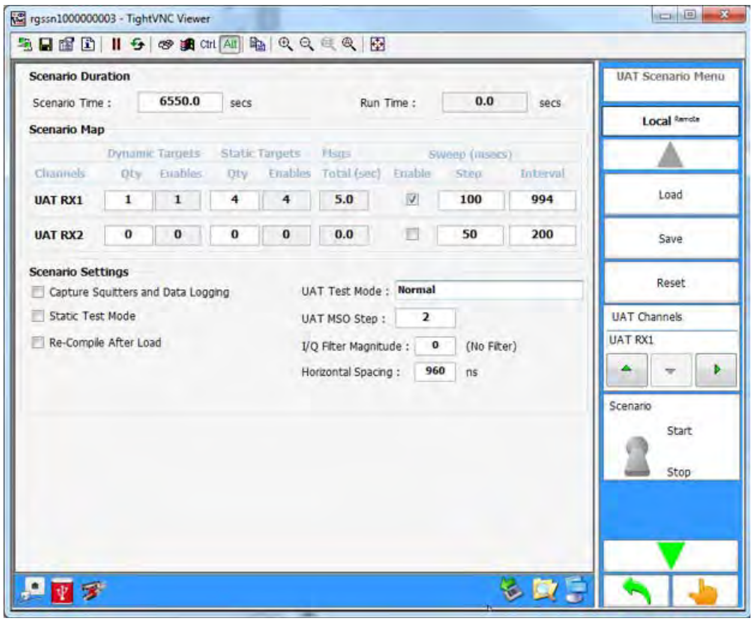



**Figure 1.2.3 - 162 UAT Scenario Screen and Softkey Menu Sequence**

| Screen Components | Description |
|---|---|
| **Scenario Time Field** | Defines the total Scenario Run Time. |
| **Run Time** | Displays the length of time a Scenario has been running. |
| **UAT#1 / UAT #2** | |
| Dynamic Targets | Quantity: Defines the number of dynamic targets.<br>Enables: Displays the quantity of dynamic targets that are enabled. |
| Static Targets | Quantity: Defines the number of static targets.<br>Enables:Displays the quantity of static targets that are enabled. |
| Total Messages | Displays the total number of messages. |
| Enable | Enables/Disables sweep mode. |
| Sweep | Step: Defines the milliseconds time between swept transmissions. Range 50 to 200 ms. Used only when sweep is enabled.<br>Interval: Defines the length or end point of the sweep in milliseconds. Used only when sweep is enabled. |
| **Capture Squitters and Data Logging** | Enables/disables the Capture Squitters and Data Logging. If enabled, the log file is cleared when the scenario starts and the log file starts capturing new messages. |
| **Static Test Mode** | Enables/disables the Static Test Mode. Targets are active at the end of the scenario time at the target's last position. |
| **Re-Compile After Load** | Enables/disables the Re-Compile After Load. If enabled, compiles all messages for the different targets after loading a saved file. |
| **UAT Test Mode** | Selects the UAT Test Mode.<br>(Refer to the Definition of UAT Test Mode Table.) |
| **UAT MSO Step** | Defines the UAT MSO Step, the space between messages in MSO steps (MSO Step = 250us). Only used for multiple targets. |

| Screen Components | Description |
|---|---|
| **Width** | Defines the Pulse Width for 1090 Pulse Interference Test Mode. |
| **Power** | Defines the Pulse Power Level for DME Fruit 12 µs Spacing, DME Fruit 30 µs Spacing and Receiver Selectivity Test Modes. |
| **Frequency** | Defines the carrier frequency for DME Fruit 12 µs Spacing, DME Fruit 30 µs Spacing and Receiver Selectivity Test Modes. |
| **Doppler** | Defines the Doppler. Doppler Test and Doppler Modulation Frequency Test Modes. |
| **Doppler Shift** | Defines the shift for Doppler Test and Doppler Modulation Frequency Test Modes. |
| **Modulation** | Defines the Modulation for Doppler Modulation Frequency and Modulation Frequency Test Modes. |
| **I/Q Filter Magnitude** | Defines the I/Q Filter Magnitude for the UAT test mode selected. |
| **Horizontal Spacing** | Defines the Horizontal Spacing for the UAT test mode selected. |

| Softkey Menu | Description |
|---|---|
| **Load Softkey** | Loads a stored UAT Test. |
| **Save Softkey** | Allows the user to save the current UAT Test. |
| **Reset Softkey** | Resets the test settings to the default values. |
| **UATs Menu**  | Selects the UAT. When a UAT is selected and a quantity of Targets have been selected, a directional arrow button is displayed which is used to access the UAT Target Definition Screen.<br>The Target Definition Screen is accessed by pressing the UAT Target Screen Button on the UATs Softkey. |
| **UAT RX1 Dynamics Field** | Defines the number of UAT RX1 Dynamic Targets. |
| **UAT RX1 Statics Field** | Defines the number of UAT RX1 Static Targets. |
| **UAT RX1 Toggle Switch** | Enables/disables the UAT RX1 Sweep. |
| **UAT RX1 Sweep Rate Field** | Defines the UAT RX1 Sweep Rate. |
| **UAT RX1 Sweep Interval Field** | Defines the UAT RX1 Sweep Interval. |
| **UAT RX2 Dynamics Field** | Defines the number of UAT RX2 Dynamic Targets. |
| **UAT RX2 Statics Field** | Defines the number of UAT RX2 Static Targets. |
| **UAT RX2 Sweep Toggle Switch** | Enables/disables the UAT RX2 Sweep. |
| **UAT RX2 Sweep Rate Field** | Defines the UAT RX2 Sweep Rate. |
| **UAT RX2 Sweep Interval Field** | Defines the UAT RX2 Sweep Interval. |
| **Capture Toggle Switch** | Enables/disables the Capture Squitters and Data Logging. If enabled, the log file is cleared when the scenario starts and the log file starts capturing new messages. |
| **Static Test Mode Toggle Switch** | Enables/disables Static Test Mode. |
| **UTC Time GPS Toggle Switch** | Enables/disables the UTC time from the GPS signal. |
| **Scenario** | Enables/disables the Scenario. |

### 3.6.12 UAT TEST MODE DEFINITIONS

#### 3.6.12.1 Normal

Allows the user to select the UAT Test Mode:

There are two transmitters. UAT RX1 is connected to the top antenna and UAT RX2 is connected to the bottom antenna. Each channel allows 32 dynamic targets and 1500 static targets. Each target can be defined as an airborne or groundlink message.

The user can change the eye diagram horizontal spacing and also allows selection of different filters to change the transition in the eye diagram from positive to negative frequency deviation.

The targets can be a defined reference to an own aircraft latitude and longitude or a specific offset from the MSO can be selected.

The UAT Scenario requires a 1 PPS (one pulse per second) signal input into the TX Mod #1 input on the rear panel of the RGS-2000NG to run the Scenario.

#### 3.6.12.2 Overlapping

Both transmitters are connected to the top antenna port. This mode allows the user to perform the DO-282 MOPS tests associated with reception of overlapping UAT messages.

All the settings of Normal Mode are also allowed.

#### 3.6.12.3 DME Fruit 12 us Spacing

One UAT transmitter and one pulse modulated transmitter are connected to the top antenna port to perform the DME fruit DO-282 MOPS test.

The power and frequency of the DME 12 us pulse pair can be selected by the user.

All the settings of Normal mode are also allowed.

#### 3.6.12.4 Retrigger Long ADS-B Msg

The user can define a long ADS-B message that is retriggerable (the UAT preamble is embedded in the message more than once). Allows for DO-282 MOPS testing of the receiver retrigger capability.

All the settings of Normal mode are also allowed.

#### 3.6.12.5 Retrigger Long Ground Link Msg

Similar to Retrigger Long ADS-B Msg except that usage is to test the receiver capability on retrigger ground uplink messages.

All the settings of Normal mode are also allowed.

#### 3.6.12.6 1090 Pulse Interference

Allows transmission of UAT messages with a pulse modulation. The user can define the power and frequency of the interference signal. Used to test the 1090 pulse interference test in DO-282.

All the settings of Normal mode are also allowed.

#### 3.6.12.7 Ground Link Msg Invalid MSO

Allows the user to transmit a ground link message with an invalid MSO location. Allows testing the DO-282 test required for ground link invalid MSO.

All the settings of Normal mode are also allowed.

#### 3.6.12.8 Airborne Msg Invalid MSO

Allows the user to transmit airborne messages with an invalid MSO location. Allows testing the DO-282 test required for airborne invalid MSO.

All the settings of Normal mode are also allowed.

#### 3.6.12.9 Doppler Test

Allows the user to generate a positive or negative Doppler frequency shift on the UAT modulation frequency. Allows testing DO-282 Doppler Test.

All the settings of Normal mode are also allowed.

#### 3.6.12.10 Modulation Frequency

Allows the user to change the vertical spacing of the eye diagram (±312.5 kHz). The modulation frequency can be changed from approximately 156 to 683 kHz allowing testing of DO-282 MOPS tests.

All the settings of Normal mode are also allowed.

#### 3.6.12.11 DME Fruit 30 us Spacing

One UAT transmitter and one pulse modulated transmitter are connected to the top antenna port. Allows testing the DME fruit DO-282 MOPS test.

The power and frequency of the DME 30 us pulse pair can be selected by the user.

All the settings of Normal mode are also allowed.

#### 3.6.12.12 Doppler Modulation Frequency

Allows the user to generate a positive or negative Doppler frequency shift at a specified modulation frequency to perform the DO-282 Doppler test.

All the settings of Normal mode are also allowed.

#### 3.6.12.13 Receiver Selectivity

Allows the user to generate an UST message with a CW signal at the specified frequency and power level to perfom the testing of receiver selectivity in the DO-282 MOPS.

All the settings of Normal mode are also allowed.

#### 3.6.12.14 Multi-Receiver Scenario:

Allows transmission of multiple targets in the three frequency bands. With this Scenario the user can test the receiver can simultaneously receive messages from each band. The user can also test the receiver capacity by transmitting a high number of messages on each band.

The UAT and 1090 messages are transmitted on the top and bottom ports. The 1030 messages are transmitted on the selected port.

### 3.6.13 UAT TARGET DEFINITION SCREEN

The UAT Target Definition Screen is only available when a specific UAT Test Mode is selected on the UAT Scenario Screen.

When a valid UAT Test Mode is selected the right-facing directional arrow button is enabled on the UATs Softkey. Pressing this button accesses the UAT Target Definition user Screen.

## SCREEN SEQUENCE:

UAT Screen > Scenario Softkey > Test Mode: Specific Mode (Not “Normal”) >

The Target Definition Screen is then accessed by pressing the UAT Target Screen Button on the UATs Softkey.

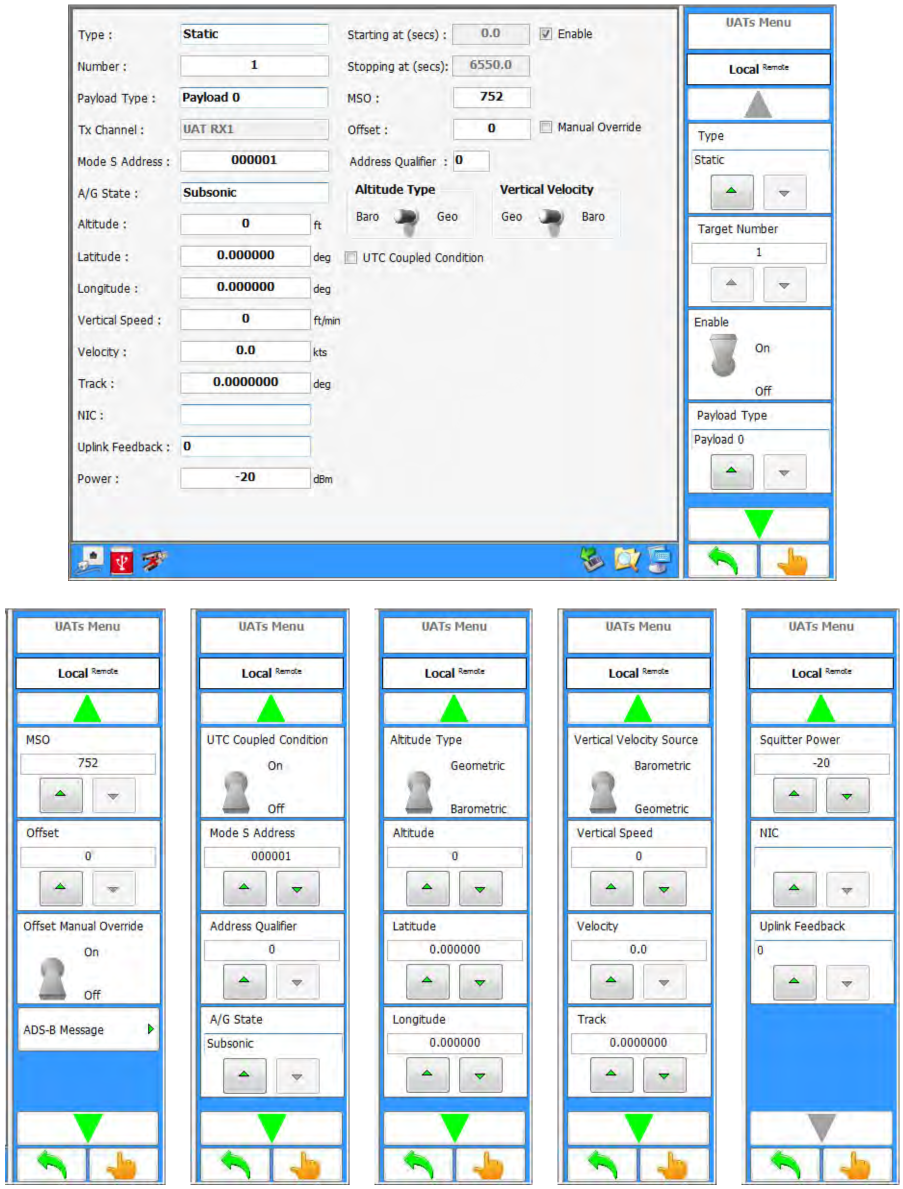



**Figure 1.2.3 - 163 UAT Target Definition Screen and Menus**

| Screen Components | Description |
|---|---|
| **Type Menu** | Selects the Target Type. |
| **Number Menu** | Selects the Target Number. |

| Screen Components | Description |
|---|---|
| **Payload Type Menu** | Selects the Payload Type. |
| **Tx Channel Menu** | Selects the Tx Channel. Tx Channels are defined on the TCAS Settings user Screen. Refer to Section 3.4.1, TCAS Settings Screen. |
| **Mode S Address Fields** | Allows the user to select the Mode S Address. |
| **A/G State Menu** | Allows the user to select the A/G State. |
| **Altitude Field** | Allows the user to select the Altitude. |
| **Latitude Field** | Allows the user to select the Latitude. |
| **Longitude Field** | Allows the user to select the Longitude. |
| **Vertical Speed Field** | Allows the user to select the Vertical Speed. |
| **Velocity Field** | Allows the user to select the Velocity. |
| **Track Field** | Allows the user to select the Track. |
| **NIC Field** | Allows the user to select the NIC. |
| **Uplink Feedback Field** | Allows the user to select the Uplink Feedback. |
| **Power Field** | Allows the user to select the Power. |
| **Starting at (secs) Field** | Allows the user to select the Start Time the Target is operational. |
| **Enable Tick Box** | Allows the user to enable the Target. |
| **Stopping at (secs) Field** | Allows the user to select the Stop Time the Target is operational. |
| **MSO Field** | Allows the user to select the MSO Transmission Slot. |
| **Offset Field** | Allows the user to select the select the Offset.<br>If Manual Override is disabled, the Offset is calculated between the Target Latitude and Longitude and the Receiving Station Latitude and Longitude.<br>If Manual Override is enabled, the calculated Offset is replaced by the Offset entered. |
| **Manual Override TIck Box** | Allows the user to select the enable the Manual Override. |
| **Address Qualifier Field** | Allows the user to select the Address Qualifier. |
| **Altitude Type Toggle Switch** | Allows the user to select the Altitude Type. |
| **Vertical Velocity Toggle Switch** | Allows the user to select the Vertical Velocity. |
| **UTC Coupled Condition Tick Box** | Allows the user to enable the UTC Coupled Condition. |
| **ADS-B Message Softkey** | Accesses the UAT ADS-B Message Screen. |

### 3.6.13.1 UAT ADS-B Message Screen

The UAT ADS-B Message Screen displays information about the UAT ADS-B Message. Additional message information is displayed by pressing the Payload Details Softkey.

**SCREEN SEQUENCE:**

UAT Target Definition Screen > ADS-B Message Softkey

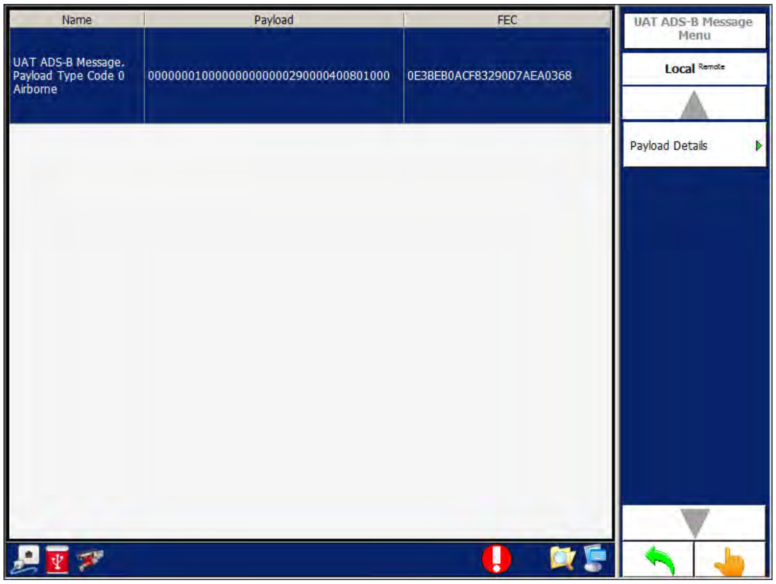



**Figure 1.2.3 - 164 UAT ADS-B Message Screen**

| Screen Components | Description |
|---|---|
| **Name** | Displays the Message Name. |
| **Payload** | Displays the Message Payload. |
| **FEC** | Displays the Message FEC. |
| **Payload Details Softkey** | Allows the user to display the UAT Payload Fields Screen. |

### 3.6.13.1.1 UAT Payload Fields Screen

**SCREEN SEQUENCE:**

UAT Target Definition Screen > ADS-B Message Softkey > Payload Details Softkey

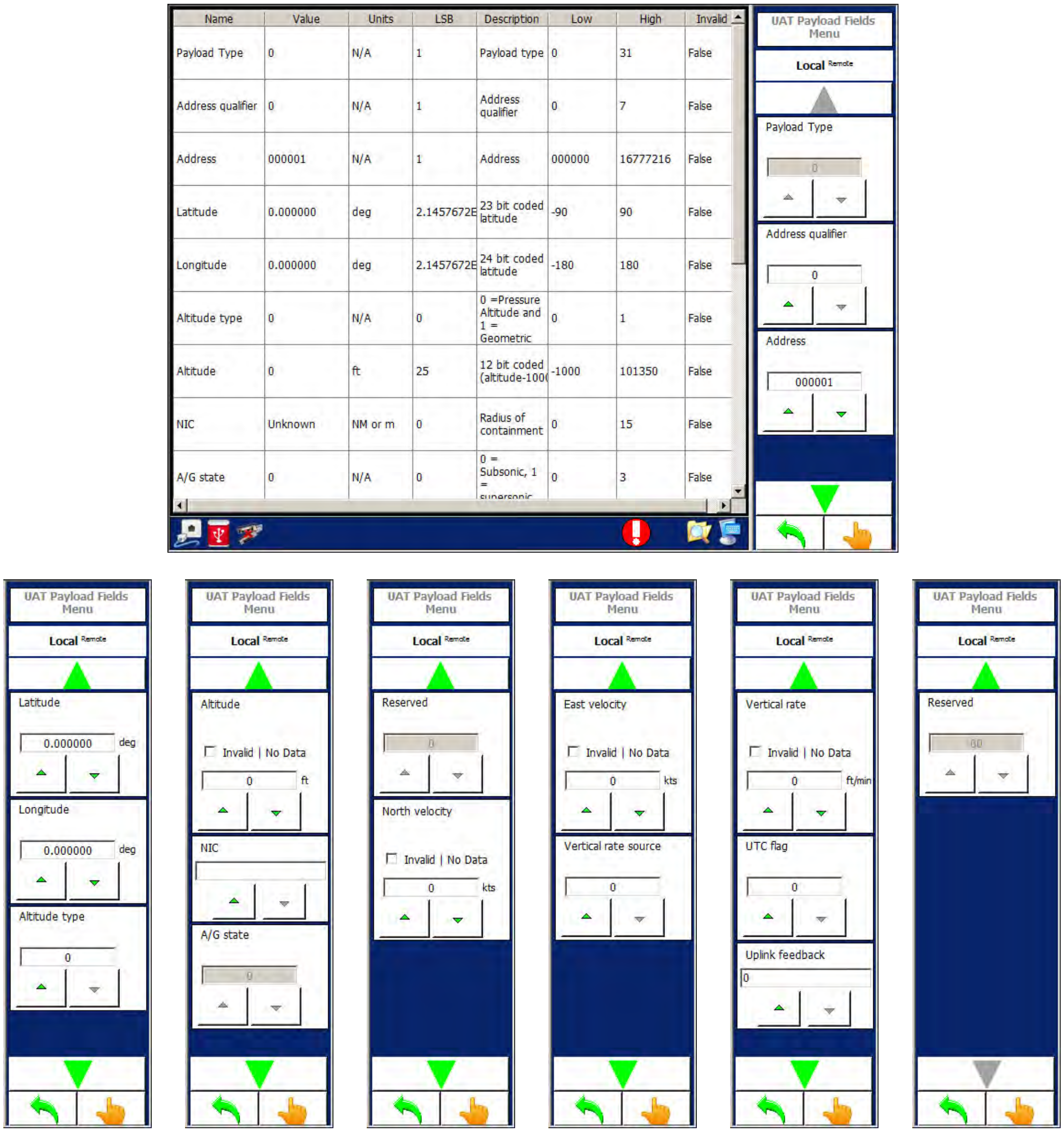



**Figure 1.2.3 - 165 UAT Payload Fields Screen/Menu Sequence**

| Screen Components | Description |
|---|---|
| **Name** | Displays the Payload Field Name. |
| **Value** | Displays the Payload Field Value. |
| **Units** | Displays the Payload Field Units of Measure. |
| **LSB** | Displays the Payload Field Lease Significant Bit. |

| Screen Components | Description |
|---|---|
| **Description** | Displays the Payload Field Description. |
| **Low** | Displays the Payload Field Low Level. |
| **High** | Displays the Payload Field High Level. |
| **Invalid** | Displays the Payload Field Invalid Status. |
| **Payload Type** | Displays the payload type code of the ADS-B message of the intruder. |
| **Address Qualifier Softkey** | Defines the address qualifier of the intruder. |
| **Address Softkey** | Defines the Mode S Address. |
| **Latitude** | Defines the Latitude. |
| **Longitude** | Defines the Longitude. |
| **Altitude Type** | Defines the Altitude Type. |
| **Altitude** | Defines the Altitude. |
| **NIC Softkey** | Defines the Navigation Integrity Category (NIC) of the intruder. |
| **A/G State Softkey** | Defines the Air/Ground (A/G) State of the intruder. |
| **Reserved Softkey** | Future Use. |
| **North Velocity Softkey** | Defines the intruder velocity. If velocity data is not available, select Invalid \| No Data Tick Box.<br>If velocity data is not available then the E/W velocity, N/S velocity and Ground Speed information is not available. |
| **East Velocity Softkey** | Defines the intruder velocity. If velocity data is not available, select Invalid \| No Data Tick Box.<br>If velocity data is not available then the E/W velocity, N/S velocity and Ground Speed information is not available. |
| **Vertical Rate Source Softkey** | Defines the Vertical Rate Source. |
| **Vertical Rate Softkey** | Defines the Vertical Rate. |
| **UTC Flag Softkey** | Defines the UTC Flag. |
| **Uplink Feedback Softkey** | Defines the uplink feedback encoding of the intruder. |
| **Reserved Softkey** | Future Use |

### 3.6.13.2 UAT Target Definition Screen (Basic ADS-B)

Allows the user to enter the hexadecimal data for the message and FEC portions of the ADS-B message.

**SCREEN SEQUENCE:**

UAT Target Definition Screen > Payload Type: Basic ADS-B

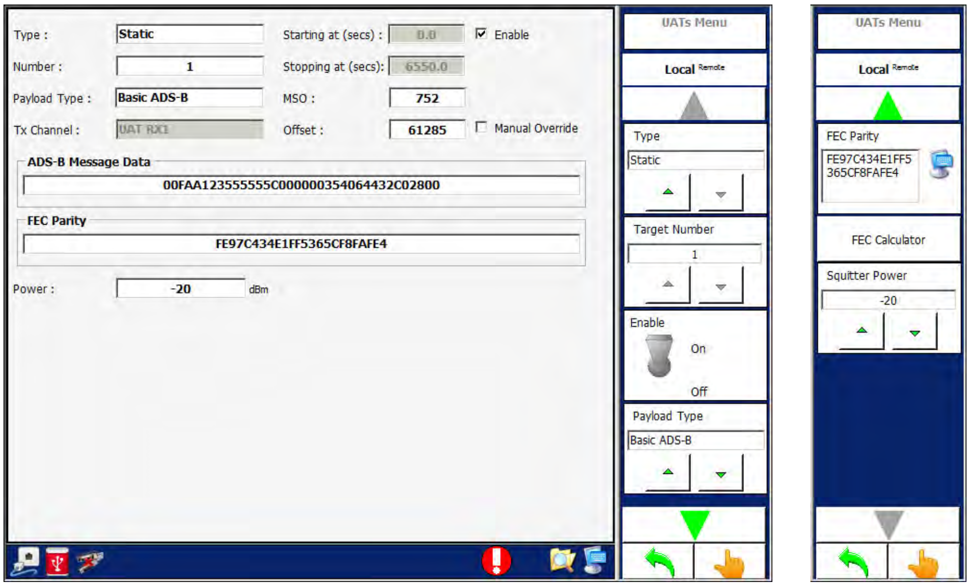



**Figure 1.2.3 - 166 UAT Target Definition Screen/Menu Sequence (Basic ADS-B)**

| Screen Components | Description |
|---|---|
| **(Intruder) Type Field** | Selects the type of intruder. |
| **(Target) Number Field** | Defines the target number. |
| **Payload Type Menu** | Selects the payload type of the intruder. |
| **Tx Channel Field** | Displays the selected Tx Channel. Tx Channels are defined on the UAT Settings user Screen. Refer to Section 3.6.1, UAT Settings Screen. |
| **ADS-B Message Data Field** | Defines the basic or long data message of the intruder. |
| **FEC Parity Field** | Defines the FEC Parity Data for Basic ADS-B and Long ADS-B payload types. |
| **Power Field** | Defines the Squitter Power. |
| **Starting at (secs) Field** | Displays the Start Time the Target is operational. |
| **Enable Tick Box/Toggle Switch** | Allows the user to enable the Target. |
| **Stopping at (secs) Field** | Displays the Stop Time the Target is operational. |
| **MSO Field** | Defines the MSO Transmission Slot. |

| Screen Components | Description |
|---|---|
| **Offset Field** | Defines the offset or delay of the intruder.<br>If Manual Override is enabled, the calculated Offset is replaced by the defined Offset.<br>If Manual Override is disabled, the Offset is calculated between the Target Latitude and Longitude and the Receiving Station Latitude and Longitude. |
| **Manual Override Tick Box** | Allows the user to select the enable the Offset Manual Override. |
| **FEC Calculator Softkey** | Pressing this softkey calculates the Forward Error Correction. |
| **Squitter Power Field** | Defines the Squitter Power. |

### 3.6.13.3 UAT Target Definition Screen (Ground Uplink)

This user screen is used to define a Ground Uplink UAT message.

**NOTE:** **WHEN DEFINING TARGETS, THE TOUCHSCREEN SOFTWARE STARTS AT MSO 752 AND SPACES THE TARGETS AT THE SPECIFIED MSO STEPS. IT DEFAULTS ALL TARGET MESSAGES TO PAYLOAD TYPE 0 WITH DIFFERENT MODE S ADDRESSES.**

**IF YOU DESIRE ANY GROUND UPLINK MESSAGES, SET THE PAYLOAD TYPE BEFORE SETTING THE MSO POSITION OR THE COMMAND MAY BE IGNORED.**

**SCREEN SEQUENCE:**

UAT Target Definition Screen > Payload Type: Ground Uplink

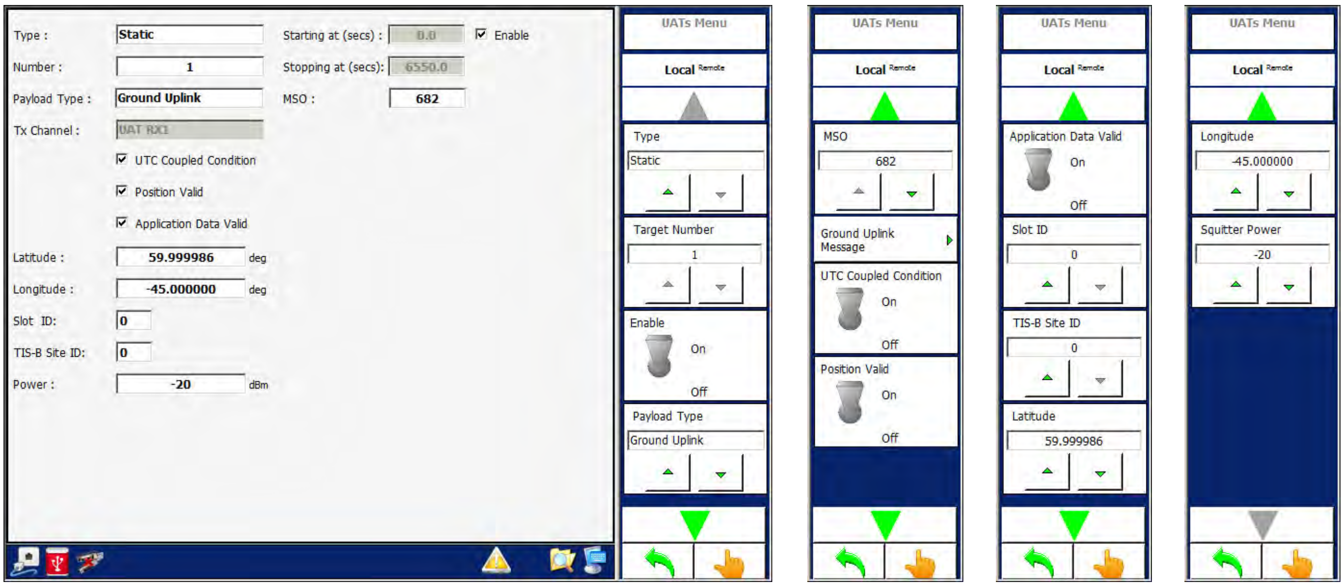



**Figure 1.2.3 - 167 AT Target Definition Screen (Ground Uplink)**

| Screen Components | Description |
|---|---|
| **(Intruder) Type Field** | Selects the type of intruder. |
| **(Target) Number Field** | Defines the target number. |
| **Payload Type Menu** | Selects the payload type of the intruder. |
| **Tx Channel** | Displays the selected Tx Channel. Tx Channels are defined on the UAT Settings user Screen. Refer to Section 3.6.1, UAT Settings Screen. |
| **UTC Coupled Condition Tick Box** | Enables/disables the UTC Coupled Condition of the intruder. Parameter can also be configured on the Softkey |
| **Position Valid Tick Box** | Enables/disables the Position Valid condition of the intruder. |
| **Application Data Valid Tick Box** | Enables/disables the Application Data Valid condition of the intruder. |
| **Latitude Field** | Defines the Latitude. |
| **Longitude Field** | Defines the Longitude. |
| **Slot ID Field** | Defines the Slot ID. |

| Screen Components | Description |
|---|---|
| **TIS-B Site ID Field** | Defines the TIS-B Site ID. |
| **(Squitter) Power Field** | Defines the Squitter Power. |
| **Starting at (secs) Field** | Defines the Start Time the Target is operational. |
| **Enable Tick Box** | Allows the user to enable the Target. |
| **Stopping at (secs) Field** | Defines the Stop Time the Target is operational. |
| **MSO Field** | Defines the MSO Transmission Slot. |
| **MSO** | Defines the MSO Transmission Slot. |
| **Ground Uplink Message Softkey** | Accesses the Ground Uplink Message Screen. Refer to section 3.6.13.3.1, UAT Target Ground Uplink Message Screen for information. |

### 3.6.13.3.1 UAT Target Ground Uplink Message Screen

**SCREEN SEQUENCE:**

UAT Target Definition Screen > Payload Type: Ground Uplink > Ground Uplink Messages Softkey

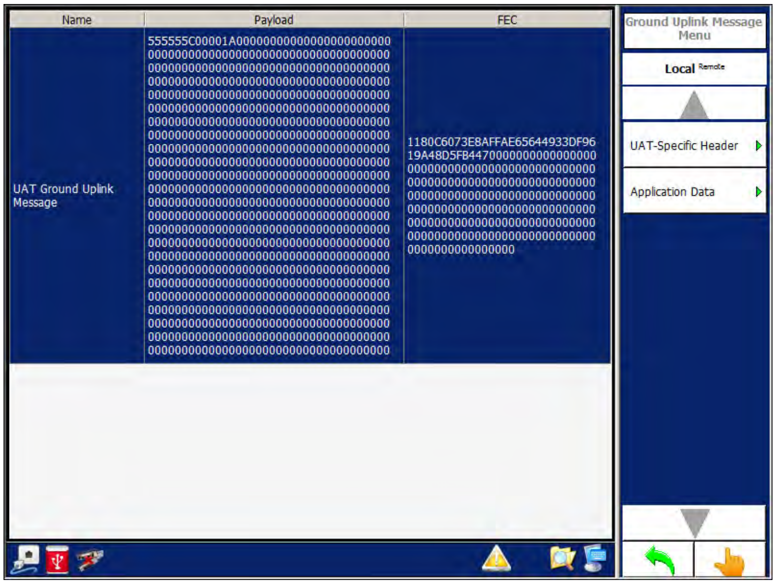



**Figure 1.2.3 - 168 UAT Target Ground Uplink Message Screen**

| Screen Components | Description |
|---|---|
| **Name** | Displays the Message Name. |
| **Payload** | Displays the Message Payload. |
| **FEC** | Displays the Message FEC. |
| **UAT-Specific Header Softkey** | Allows the user to display the UAT-Specific Header Fields Screen. |
| **Application Data Softkey** | Allows the user to display the Application Data Screen. |

### 3.6.13.3.2 UAT Target Specific Header Fields Screen

This user screen defines the Ground Uplink UAT-Specific Header data.

**SCREEN SEQUENCE:**

UAT Target Definition Screen > Payload Type: Ground Uplink > Ground Uplink Messages Softkey > UAT Specific Header Softkey

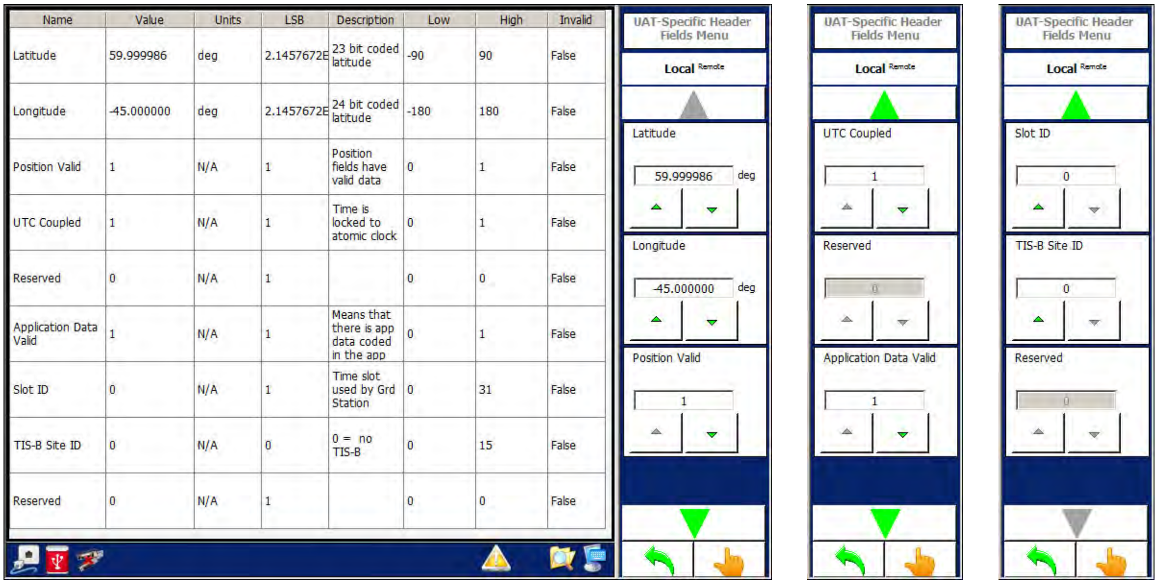



**Figure 1.2.3 - 169 UAT Target Specific Header Fields Screen**

### 3.6.13.3.3 UAT Target Application Data Screen

This user screen defines the Ground Uplink Application Data.

**SCREEN SEQUENCE:**

UAT Target Definition Screen > Payload Type: Ground Uplink > Ground Uplink Messages Softkey > Application Data Softkey

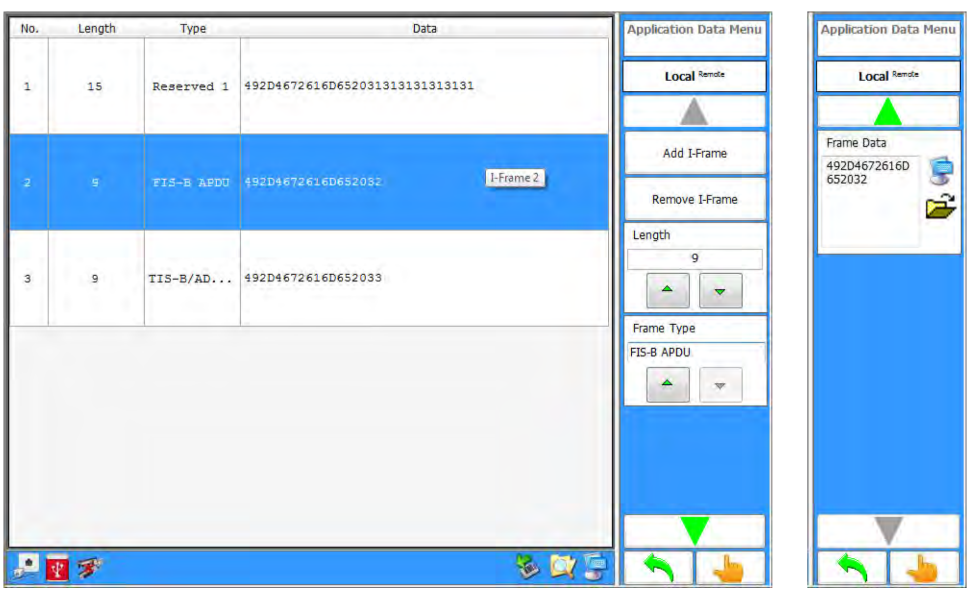



**Figure 1.2.3 - 170 UAT Target Application Data Screen**

### 3.6.13.3.4 UAT Sweep Mode

Sweep mode is a combination of fixed and swept messages. Fixed messages are transmitted each second at fixed time slots. If Sweep mode is enabled, messages defined between 200ms and 210ms (Swept Messages) are moved to a different time slot each second. The time slot spacing is determined by the Sweep Step value. The sweep function may be used to fulfill the test Verification of Capacity for Successful Message Reception defined in DO-282.

1 The MSO region that is going to be swept is the messages defined from MSO 776-815 (200 - 210 ms). The messages defined in the first 10ms of this range will be swept across the first 10ms of each of the following ranges. At a 100ms step, in the first second the messages will be transmitted between 200ms to 210ms. In the next second the messages will be moved to 300ms to 310ms.

2 The messages will move by the Sweep Step defined so no messages can be defined for the first 10ms of each Sweep step range or time slot. Messages defined outside the first 10ms of each Sweep Step will be transmitted every second.

**EXAMPLES: IF YOU PLAN ON A 100MS STEP THEN YOU MUST LEAVE SPACE FOR THE SWEPT MESSAGES IN THE 300MS - 310MS, 400MS - 410MS, ETC. RANGES.**

**IF YOU PLAN TO SWEEP AT 50MS STEP THEN YOU MUST LEAVE SPACE FOR THE SWEPT MESSAGES IN THE 250MS - 260MS, 300MS - 310MS, ETC. RANGES.**

**NOTE: THE RELATIONSHIP OF TIME FROM THE START OF EACH FRAME TO MSO STEP IS CALCULATED WITH THE EQUATION (TIME = 6MS + 250US*MSO STEP).**

3 A message either ground uplink or airborne must be present before MSO 776 for the sweep function to work.

4 The Sweep Interval determines the end of the sweep range. When the Sweep Interval is reached, the swept transmissions start over at the beginning (200ms to 210ms) position.

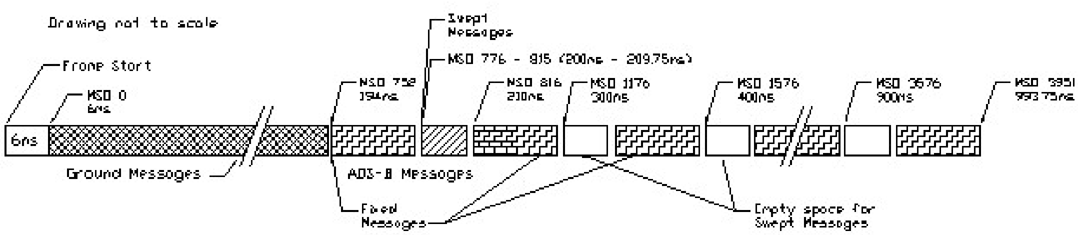



**Figure 1.2.3 - 171 100ms Step with 994ms Interval**

### 3.6.13.4 UAT Overview

UAT messages are bursted messages that are aligned with UTC time by means of GPS. The basic modulation is continuous Phase Frequency Shift Keying with a modulation index of 0.6 and a data rate of 1.041667 megabits/second (0.96us bit period) that produces a +/-312.5kHz FSK signal. One UTC second is broken up into Ground Segments and ADS-B Segments as shown in the following figure.

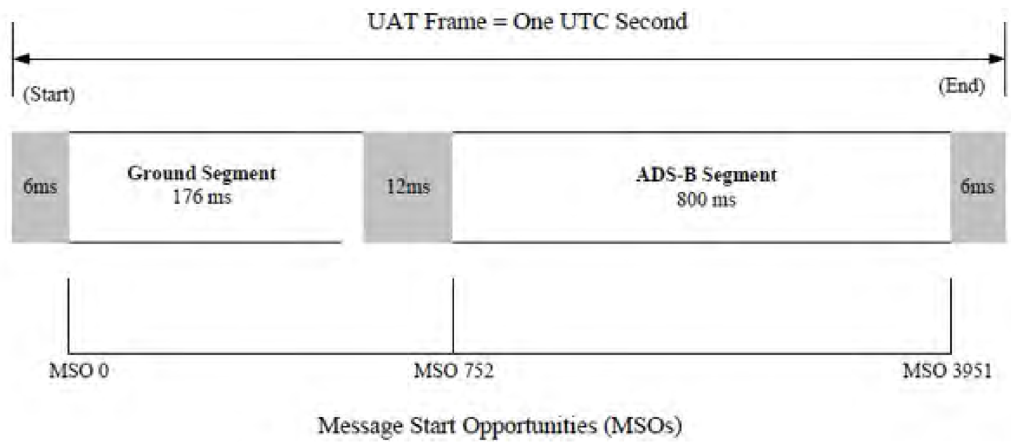



**Figure 1.2.3 - 172 UTC Second**

Each segment is broken up into specific time slots defined for both ground and ADS-B. Each segment is 250us long and the beginning of the segment is defined as a "Message Start Opportunity".

The Ground Segments and ADS-B Segments share the same modulation type, but differ in size. The Ground messages 4.274ms in length containing 432 bytes of payload data. The Airborne (ADS-B) messages are 265 or 420us in length containing 144 or 272 bytes of payload data.

#### 3.6.13.4.1 Airborne Message Format

Air transmissions start at MSO 752.

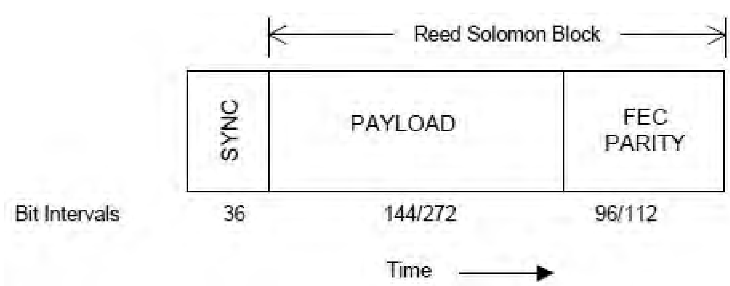



**Figure 1.2.3 - 173 ADS-B Message Format**

### 3.6.13.4.2 Ground Message Format

Because the ground uplink slot is 5.5 ms long, each slot spans the equivalent of 22 MSOs (5.5 ms / 250us per MSO).Therefore, valid MSOs for the start of the Ground Uplink Messages are 0,22,44,66,...682.

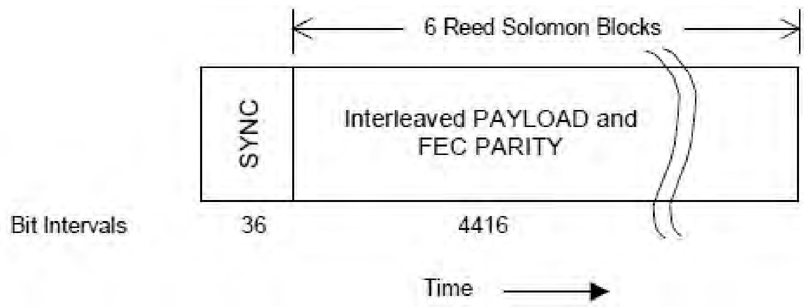



**Figure 1.2.3 - 174 Ground Uplink Message Format**

## 3.7 SYSTEM SCREEN

The System Screen allows the user to set different system parameters (i.e., GPIB address, Product Key, Scope Port Outputs, etc.).

**SCREEN SEQUENCE:**

Home Screen > System Softkey

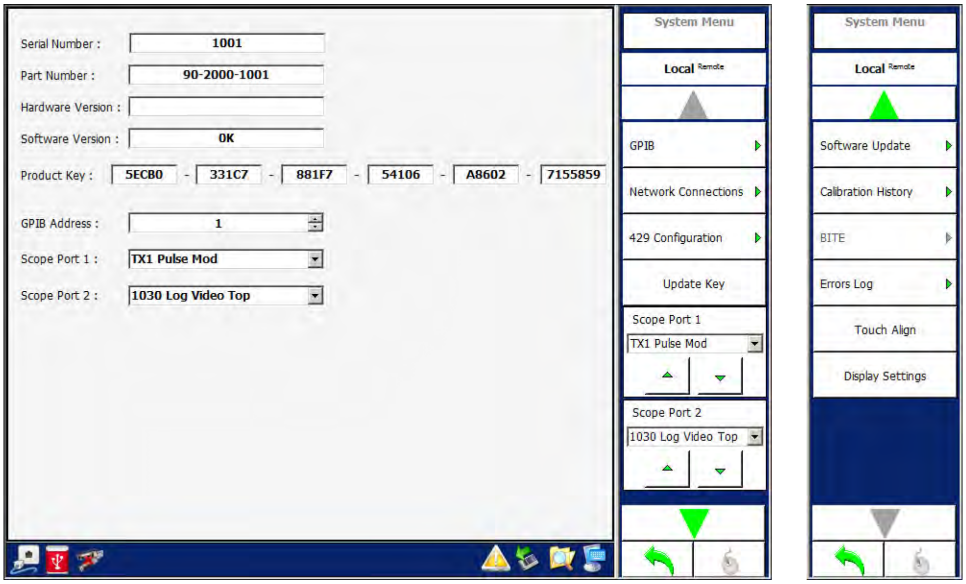



**Figure 1.2.3 - 175 System Screen**

| Screen Components | Description |
|---|---|
| **Serial Number** | Allows the user to select the Unit Serial Number. |
| **Part Number** | Allows the user to select the Unit Part Number. |
| **Hardware Version** | Allows the user to select the Unit Hardware Version. |
| **Software Version** | Allows the user to select the Unit Software Version. |
| **Product Key** | Allows the user to select the Product Key. The Product Key enables/disables Options in the Test Set.<br>Viavi provides the Product Key for the Test Set. |
| **GPIB Address** | Allows the user to select the GPIB Address.<br>Once the GPIB address is set, the GPIB address on all future power-up cycles is the same.<br>If a software update is performed, the GPIB address may need reset. |
| **Scope Port 1** | Allows the user to select the Scope Port 1 signal from multiple Test Set signal lines (i.e., Log Video, DPSK Modulation, Transmitter Modulation, etc.).<br>The user selection is saved and the same selection is used on future power-up cycles. |

| Screen Components | Description |
|---|---|
| **Scope Port 2** | Allows the user to select the Scope Port 2 signal from multiple Test Set signal lines (i.e., Log Video, DPSK Modulation, Transmitter Modulation, etc.).<br>The user selection is saved and the same selection is used on future power-up cycles. |
| **GPIB**<br>**GPIB Address**<br>**Reset** | Pressing the GPIB Button displays the GPIB Address Field in the Softkey Menu.<br>Allows the user to reset the GPIB interface. |
| **Network Connections** | Accesses the Network Connections Screen. |
| **429 Configuration Menu** | Accesses the 429 Connections Screen. |
| **Update Key** | Allows the user to validate the Product Key entered. |
| **Software Update** | Accesses the Software Update Screen. |
| **Calibration History** | Accesses the Calibration Screen.<br>Allows the user to view the last calibration date and result. |
| **Errors Log** | Accesses the Errors Log Screen.<br>Allows the user to view any command failures via GPIB, Ethernet or USB. |
| **Touch Align** | Pressing this button executes the Touch Screen Alignment Program. |
| **Display Settings** | Pressing this button opens the Windows Display Settings dialog window. |

### 3.7.1 NETWORK CONNECTIONS SCREEN

The Network Connections Screen is used to manage the Test Set's network connections. The Network Connections Table displays information about the Test Set's internal connections and external network connections. Refer to Section 3.7.3, How to Configure Network Connections for instructions for changing the Test Set's connections.

**SCREEN SEQUENCE:**

Home Screen > System Softkey > Network Connections Softkey

**Default Port Setting**

All Ethernet communications to the RGS-2000NG are on Port 2001.

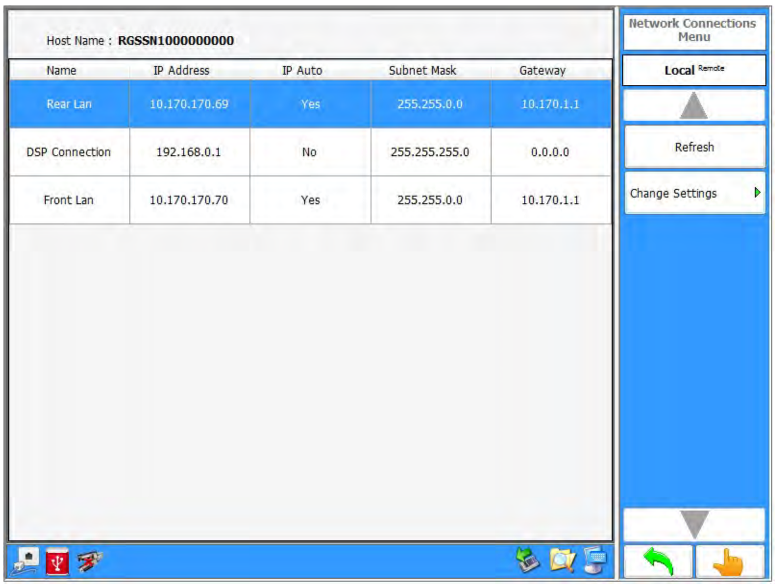



**Figure 1.2.3 - 176 Network Connections Screen**

| Screen Components | Description |
|---|---|
| **Name** | Displays the Name of the Ethernet Adapter. Names may vary. |
| **Rear LAN** | Indicates the Test Set's Rear Panel LAN Connector. |
| **Front LAN** | Indicates the Test Set's Front Panel LAN Connector. |
| **DSP Connection** | This is the Test Set's internal connection. The Test Set's internal connection is IP Address 192.168.0.1 (Factory Default Setting). The IP Address should not be changed. |
| **IP Address** | Displays the IP Address of the Ethernet Adapter. |
| **IP Auto** | Displays the IP Auto (DHCP Mode) of the Ethernet Adapter. Refer to Section 3.7.3, How to Configure Network Connections for instructions for changing an connections network mode. |
| **Subnet Mask** | Displays the Subnet Mask of the Ethernet Adapter. |
| **Gateway** | Displays the Gateway of the Ethernet Adapter. |
| **Refresh Softkey** | Updates the Network Connections Screen to display the current network settings of all the Ethernet adapters. |
| **Change Settings Softkey** | Displays the Network Connection Change Settings Screen. |

### 3.7.2 NETWORK CONNECTIONS CHANGE SETTINGS SCREEN

The Change Settings Screen is used to manage the Test Set's Local Area Network (LAN) connections. This screen is displayed by selecting a network connection from the Network Connections Table on the Network Connections Screen and pressing the Change Settings Softkey.

Refer to Section 3.7.3, How to Configure Network Connections for instructions for changing the Test Set's network connections.

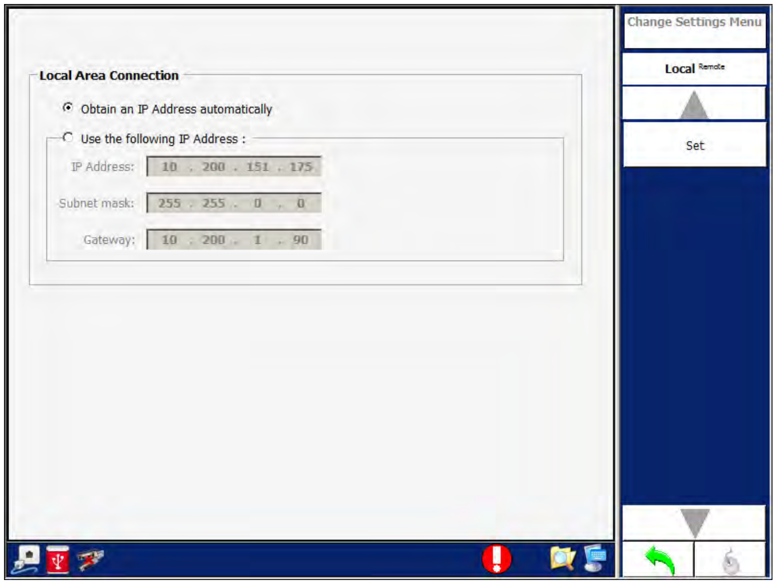



**Figure 1.2.3 - 177 DHCP Network Settings Example**

| Screen Components | Description |
|---|---|
| **Local Area Connection** | |
| **Obtain an IP Address Automatically** | Selects DHCP Mode for establishing a LAN connection. |
| **Use the following IP Address:** | Selects Static IP Mode for establishing a LAN connection. |
| **IP Address Field** | When DHCP Mode is selected this field displays the IP Address assigned to the Test Set by the network.<br>When Static Mode is selected this field is used to define the Test Set's LAN IP Address. |
| **Subnet Mask Field** | When DHCP Mode is selected this field displays the Subnet Mask assigned to the Test Set by the network.<br>When Static Mode is selected this field is used to define the Test Set's Subnet Mask. |
| **Gateway Field** | When DHCP Mode is selected this field displays the Gateway assigned to the Test Set by the network.<br>When Static Mode is selected this field is used to define the Test Set's server Gateway |
| **Set Softkey** | Initializes the network mode and/or settings. |

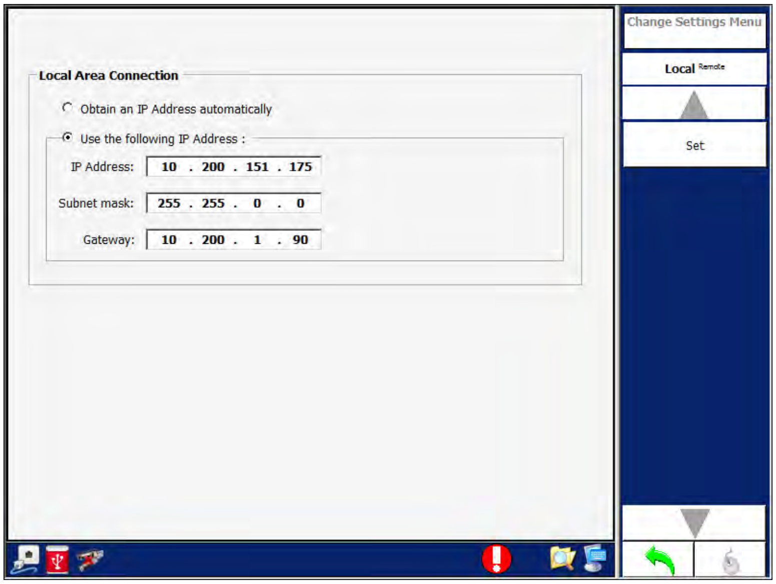



**Figure 1.2.3 - 178 Static IP Network Settings Example**

## 3.7.3 HOW TO CONFIGURE NETWORK CONNECTIONS

### 3.7.3.1 Static IP Network Connection

**NOTE: USERS SHOULD CONTACT THEIR IT DEPARTMENT TO ENSURE THE STATIC IP ADDRESS BEING ASSIGNED TO THE TEST SET IS NOT ALREADY IN USE ON THE NETWORK. ASSIGNING A STATIC IP ADDRESS TO THE TEST SET IF THE IP ADDRESS IS ALREADY IN USE BY ANOTHER DEVICE ON THE NETWORK WILL CAUSE A NETWORK CONFLICT.**

| STEP | PROCEDURE |
|---|---|
| 1 | Connect an active Ethernet cable to the test Set’s Front or Rear Panel LAN Connector. |
| 2 | Navigate to the Network Connections Screen. |
| 3 | Select the LAN Connector from the Network Connection Table. |
| 4 | Press the Change Settings Softkey. |
| 5 | Select the Use the following IP Address tick box. |
| 6 | Enter the IP Address, Subnet Mask and Gateway fields according to network settings. |
| 7 | Press the Set Softkey to initialize the network settings. |

### 3.7.3.2 DHCP Network Connection

| STEP | PROCEDURE |
|---|---|
| 1 | Connect an active Ethernet cable to the test Set’s Front or Rear Panel LAN Connector. |
| 2 | Navigate to the Network Connections Screen. |
| 3 | Select the LAN Connector from the Network Connection Table. |
| 4 | Press the Change Settings Softkey. |
| 5 | Select the Obtain an IP Address automatically tick box. |
| 6 | Press the Set Softkey to initialize the network settings. |
| 7 | Wait while the server configures the Test Set’s network connection. |

### 3.7.3.3 Change Test Set's Internal Connection

**NOTE: THE TEST SET'S INTERNAL CONNECTION IS IP ADDRESS 192.168.0.1 (FACTORY DEFAULT SETTING). THE IP ADDRESS SHOULD NOT BE CHANGED UNLESS REQUIRED TO USE THIS ADDRESS FOR THE EXTERNAL CONNECTIONS.**

| STEP | PROCEDURE |
| --- | --- |
| 1 | Navigate to the Network Connections Screen. |
| 2 | Select the Internal Connector from the Network Connection Table. |
| 3 | Press the Change Settings Softkey. |
| 4 | Select the Use the following IP Address Tick Box. |
| 5 | Enter the IP address for the internal DSP connection. |
| 6 | Press the Set Softkey. |
| 7 | Wait while the Test Set reconfigures the internal DSP settings. When this process is complete, the system resets the connection and reboots the DSP. This process takes a few minutes. |
| 8 | When this process is complete the application software re-establishes internal communications with the DSP using the new IP Address. On all future reboots the new IP address is used. |

**NOTE: TO RETURN TO THE FACTORY IP ADDRESS, NAVIGATE TO ONE OF THE TEST MODE SCREENS AND PRESS THE FACTORY SETUP SOFTKEY. WHEN THE FACTORY SETUP SOFTKEY IS PRESSED THE SOFTWARE PERFORMS THE PROCESS TO RECONFIGURE THE INTERNAL DSP CONNECTION TO THE FACTORY DEFAULT IP ADDRESS (192.168.0.1).**

### 3.7.4 429 CONFIGURATION SCREEN

The 429 Configuration Screen contains settings which allow the user to select the 429 input channel position and label. Parameters can be defined on the Main Display Area or the Settings Softkey Menus.

**SCREEN SEQUENCE:**

Home Screen > System Softkey > 429 Configuration Softkey

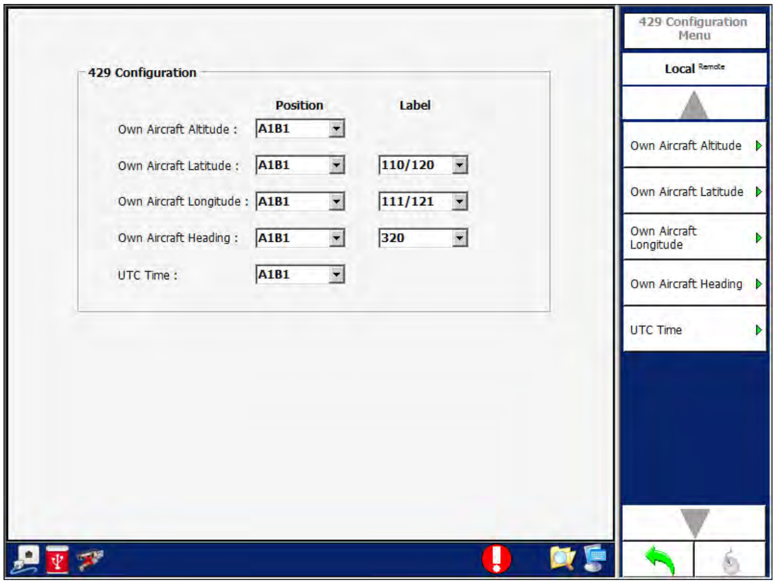



**Figure 1.2.3 - 179 429 Configuration Screen**

| Screen Components | Description |
|---|---|
| **Own Aircraft Altitude** | Allows the user to select the Position (input port) of the 429 Adapter for the Own Aircraft Altitude data.<br>429 Label 203 is used.<br>Selections are maintained on future power-up cycles. |
| **Own Aircraft Latitude** | Allows the user to select the Position (input port) of the 429 Adapter for the Own Aircraft Latitude data.<br>Allows the user to select the 429 Label.<br>Selections are maintained on future power-up cycles. |
| **Own Aircraft Longitude** | Allows the user to select the Position (input port) of the 429 Adapter for the Own Aircraft Longitude data.<br>Allows the user to select the 429 Label.<br>Selections are maintained on future power-up cycles. |
| **Own Aircraft Heading** | Allows the user to select the Position (input port) of the 429 Adapter for the Own Aircraft Heading data.<br>Allows the user to select the 429 Label.<br>Selections are maintained on future power-up cycles. |
| **UTC Time** | Allows the user to select the Position (input port) of the 429 Adapter for the UTC Time data.<br>429 Label 150 is used.<br>Selections are maintained on future power-up cycles. |

### 3.7.5 SOFTWARE UPDATE SCREEN

The Software Update Screen is used to update the Test Set's DSP software or FPGA firmware.

**SCREEN SEQUENCE:**

Home Screen > System Softkey > Software Update Softkey

#### 3.7.5.1 Software Update Process:

Kernel and Touch Screen software are updated.

Kernel and Touch Screen software are executed.

Touch Screen software automatically starts in the Software Update Screen and programs all necessary DSP software and FPGA firmware for the updated software. If update fails because of an update failure, place the cursor in the Selected Programming Script File textbox on the top of the screen and press Alt S. The Touch Screen software reads the last valid configuration file and displays all the valid FPGA and DSP versions.

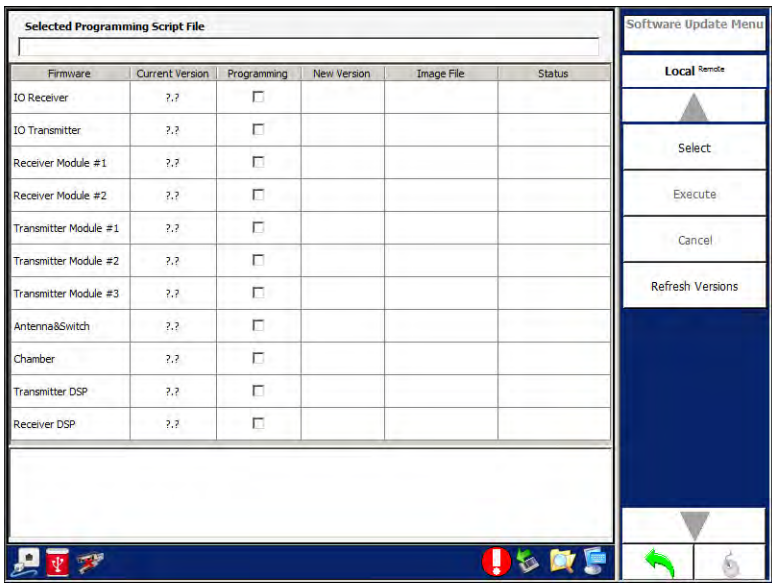



**Figure 1.2.3 - 180 Software Update Screen**

| Screen Components | Description |
|---|---|
| **Firmware** | Displays the Firmware Device Name. |
| **Current Version** | Displays the Current Version Number. |
| **Programming** | Enables/disables the programming of a specific DSP or FPGA device. |
| **New Version** | Displays the New Version Number. |
| **Image File** | Displays the Image File Name. |
| **Status** | Displays the Status of the device. |
| **Select** | Opens a file dialog to select the programming configuration file. |
| **Execute** | Programs all the FPGAs and DSPs that have the programming enabled. |

| Screen Components | Description |
|---|---|
| **Cancel** | Cancels the programming sequence. |
| **Refresh Versions** | Refreshes the software and firmware versions. |

### 3.7.6 CALIBRATION HISTORY SCREEN

The Calibration Screen displays the Test Set's the last calibration date and calibration results.

**SCREEN SEQUENCE:**

Home Screen > System Softkey > Calibration History Softkey

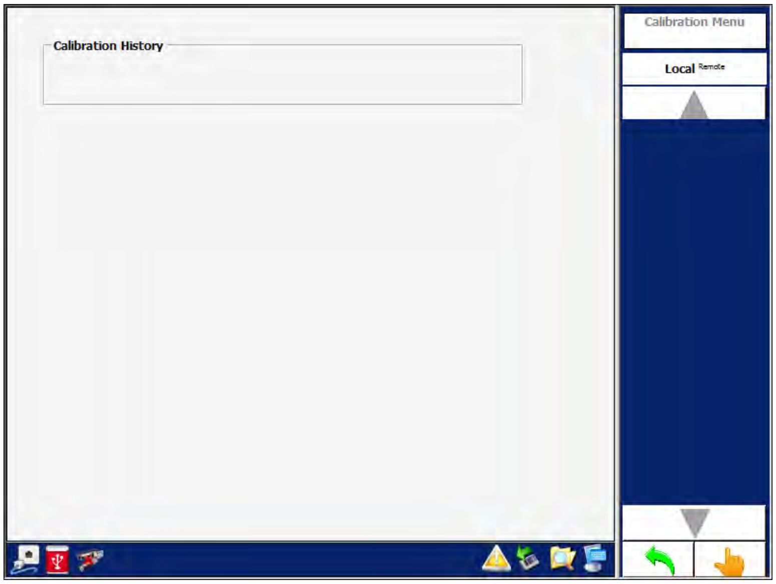



**Figure 1.2.3 - 181 Calibration Screen**

### 3.7.7 ERRORS LOG SCREEN

The Errors Log Screen displays a list of errors generated during a session. The Softkeys allow the user to save or clear the error log.

**SCREEN SEQUENCE:**

Home Screen > System Softkey > Errors Log Softkey

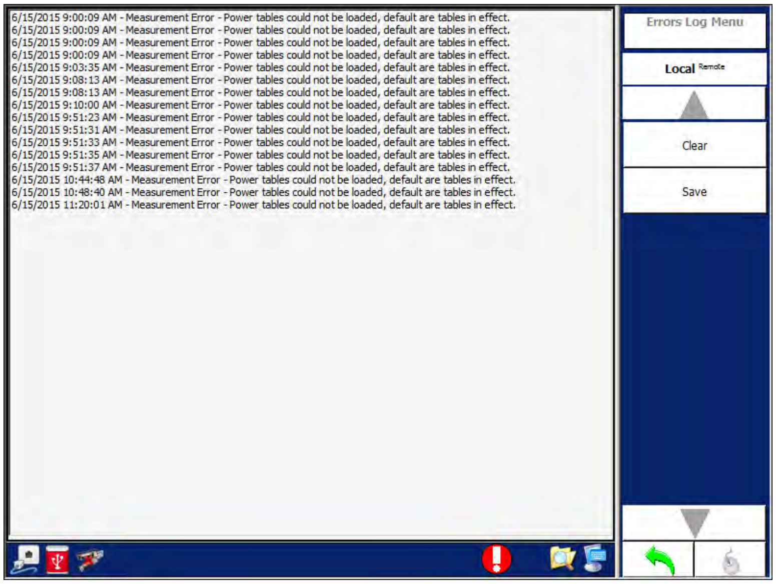



**Figure 1.2.3 - 182 Errors Log Screen**

### 3.7.8 SUPPORT SCREEN

The Support Screen displays the Viavi Customer Service contact information.

**SCREEN SEQUENCE:**

Home Screen > Support Softkey >

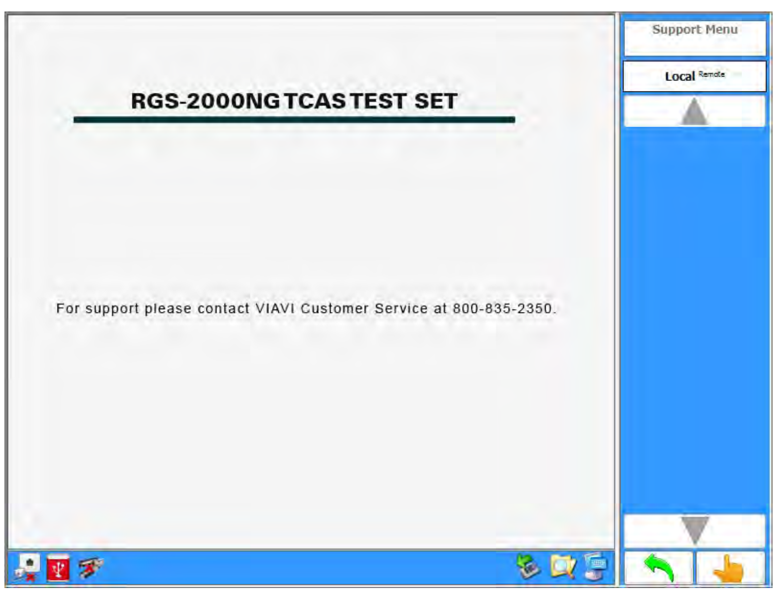



**Figure 1.2.3 - 183 Support Screen**

# 4. OPERATING PROCEDURES AND TEST CONFIGURATIONS

## 4.1 OPERATING PROCEDURES

### 4.1.1 CONFIGURE STATIC IP NETWORK CONNECTION

**NOTE: USERS SHOULD CONTACT THEIR IT DEPARTMENT TO ENSURE THE STATIC IP ADDRESS BEING ASSIGNED TO THE TEST SET IS NOT ALREADY IN USE ON THE NETWORK. ASSIGNING A STATIC IP ADDRESS TO THE TEST SET IF THE IP ADDRESS IS ALREADY IN USE BY ANOTHER DEVICE ON THE NETWORK WILL CAUSE A NETWORK CONFLICT.**

| STEP | PROCEDURE |
|---|---|
| **1** | Go to the ***Home Screen***. |
| **2** | Connect an active Ethernet cable to the test Set's Front or Rear Panel LAN Connector. |
| **3** | Navigate to the ***Network Connections*** Screen. |
| **4** | Select the LAN Connector from the Network Connection Table. |
| **5** | Select the ***Change Settings*** Softkey. |
| **6** | Select the ***Use the following IP Address*** Tick Box. |
| **7** | Enter the IP Address, Subnet Mask and Gateway fields according to network settings. |
| **8** | Select the ***Set*** Softkey to initialize the network settings. |

### 4.1.2 CONFIGURE DHCP NETWORK CONNECTION

| STEP | PROCEDURE |
|---|---|
| **1** | Go to the ***Home Screen***. |
| **2** | Connect an active Ethernet cable to the test Set's Front or Rear Panel LAN Connector. |
| **3** | Navigate to the ***Network Connections*** Screen. |
| **4** | Select the LAN Connector from the Network Connection Table. |
| **5** | Select the ***Change Settings*** Softkey. |
| **6** | Select the ***Obtain an IP Address automatically*** Tick Box. |
| **7** | Select the ***Set*** Softkey to initialize the network settings. |
| **8** | Wait while the server configures the Test Set's network connection. |

### 4.1.3 RESTORE TEST SET'S INTERNAL IP ADDRESS

**NOTE: THE TEST SET'S INTERNAL IP ADDRESS SHOULD NOT BE CHANGED. IN THE EVENT THE TEST SET'S INTERNAL IP ADDRESS IS CHANGED IN ERROR, USE THIS PROCEDURE TO RESTORE THE INTERNAL IP ADDRESS TO THE DEFAULT SETTING (192.168.0.1).**

| STEP | PROCEDURE |
|---|---|
| **1** | Go to the ***Home Screen***. |
| **2** | Navigate to the ***Network Connections*** Screen. |
| **3** | Select the Internal Connector from the Network Connection Table. |
| **4** | Select the ***Change Settings*** Softkey. |
| **5** | Select the ***Use the following IP Address*** Tick Box. |
| **6** | Enter the IP address for the internal DSP connection. |
| **7** | Select the ***Set*** Softkey. |
| **8** | Wait while the Test Set reconfigures the internal DSP settings. When this process is complete, the system resets the connection and reboots the DSP. This process takes a few minutes. |
| **9** | When this process is complete the application software re-establishes internal communications with the DSP using the new IP Address. On all future reboots the new IP address is used. |

**NOTE: TO RETURN TO THE FACTORY IP ADDRESS, NAVIGATE TO ONE OF THE TEST MODE SCREENS AND PRESS THE FACTORY SETUP SOFTKEY. WHEN THE FACTORY SETUP SOFTKEY IS PRESSED THE SOFTWARE PERFORMS THE PROCESS TO RECONFIGURE THE INTERNAL DSP CONNECTION TO THE FACTORY DEFAULT IP ADDRESS (192.168.0.1).**

### 4.1.4 CHANGE THE GPIB ADDRESS

| STEP | PROCEDURE |
|---|---|
| 1 | Go to the ***Home Screen***. |
| 2 | Select the ***System Menu*** Softkey to display the System Screen. |
| 3 | Change the GPIB address using the ***GPIB Address*** Field or select the ***GPIB*** Softkey. |
| 4 | Select the ***GPIB Address*** Softkey. Once the address is changed, the new address is stored and is used until changed again. |

### 4.1.5 PROGRAM THE DSP SOFTWARE OR FPGA FIRMWARE

| STEP | PROCEDURE |
|---|---|
| 1 | Go to the ***Home Screen***. |
| 2 | Select the ***System Menu*** Softkey to display the System Screen. |
| 3 | Select the ***Software Update*** Softkey to display the Software Update Screen. |
| 4 | Select the ***Select*** Softkey to display the file dialog to select the configuration file that is used for programming. |
| 5 | If all devices enabled in the configuration file are to be programmed, press the ***Execute*** Softkey to start programming. If some devices do not require reprogramming, deselect the device under the Programming column and press the ***Execute*** Softkey to start programming. |
| 6 | During the programming sequence the device being programmed is highlighted in the table and a progress bar is displayed in the lower section of the menu. |
| 7 | After programming is completed, restart the system. To restart the system, press the Test Set's Front Panel Power Button and allow power to turn OFF. Press the Test Set's Front Panel Power Button again to power up the Test Set. |

### 4.1.6 CHANGE THE TRANSMITTER FREQUENCY

| STEP | PROCEDURE |
|---|---|
| 1 | Go to the ***Home Screen***. |
| 2 | Select the ***TCAS*** Softkey to display the TCAS Home Screen. |
| 3 | Select the ***Settings*** Softkey to display the TCAS Settings Screen. |
| 4 | Change the frequency of the appropriate transmitter generator using the ***Frequency*** Field or select the ***Signal Generator*** Softkey, appropriate transmitter generator Softkey and use the ***Frequency*** Softkey. |

### 4.1.7 SET A SCOPE OUTPUT

| STEP | PROCEDURE |
|---|---|
| 1 | Go to the ***Home Screen***. |
| 2 | Select the ***System Menu*** Softkey to display the System Screen. |
| 3 | Change the output by using the ***Scope 1 or Scope 2*** Field or using ***Scope 1 or Scope 2*** Softkey. |

The test set contains six RF generators (A-F).

The following tables identify the generator assignments for most test conditions:

- "RGS-2000NG Generator Assignment Matrix, Transponder Instrument" on page 4
- "UAT Instrument (ADS-B, TIS-B and FIS-B Payload Generation)" on page 5

- "Multi-Receiver Generator Assignments" on page 5
- "RGS-2000NG Generator Matrix, TCAS Instrument" on page 6

| RGS-2000NG Generator Assignment Matrix, Transponder Instrument | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Test Mode** | **TX Pulse Type** | **Top Antenna** | | **Bottom Antenna** | | **Bottom Antenna** | |
| | | **Generator A** | **Generator B** | **Generator C** | **Generator D** | **Generator E** | **Generator F** |
| **Single** | All SIF Modes | P1 and P3 | P2 and P4 | P1 and P3 | P2 and P4 | — | — |
| | P1 - P2 | P1 | P2 | P1 | P2 | — | — |
| | P1 | P1 | — | P1 | — | — | — |
| | DME | P1 | P2 | P1 | P2 | — | — |
| | Mode S | P5 | P1, P2 and P6 | P5 | P1, P2 and P6 | — | — |
| | Interference Pulses | — | — | — | — | P1 | P2 |
| **Double** | All SIF Modes | P1 and P3 | P2 and P4 | P1 and P3 | P2 and P4 | — | — |
| | P1 - P2 Only | P1 | P2 | P1 | P2 | — | — |
| | P1 Only | P1 | — | P1 | — | — | — |
| | DME 12 and 30 us | P1 | P2 | P1 | P2 | — | — |
| | Mode S | P5 | P1, P2 and P6 | P5 | P1, P2 and P6 | — | — |
| | Interference Pulses | — | — | — | — | P1 | P2 |
| **Interrogation Table** | All SIF Modes | P1 and P3 | P2 and P4 | P1 and P3 | P2 and P4 | — | — |
| | P1 - P2 Only | P1 | P2 | P1 | P2 | — | — |
| | P1 Only | P1 | — | P1 | — | — | — |
| | DME 12 and 30 us | P1 | P2 | P1 | P2 | — | — |
| | Mode S | P5 | P1, P2 and P6 | P5 | P1, P2 and P6 | — | — |
| | Interference Pulses | — | — | — | — | P1 | P2 |
| **Block** | All SIF Modes | — | P1, P2, P3 and P4 | — | — | — | — |
| | P1 - P2 Only | — | P1 and P2 | — | — | — | — |
| | Mode S | — | | — | — | — | — |

| RGS-2000NG Generator Assignment Matrix, Transponder Instrument | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Test Mode** | **TX Pulse Type** | **Top Antenna** | | **Bottom Antenna** | | **Bottom Antenna** | |
| | | **Generator A** | **Generator B** | **Generator C** | **Generator D** | **Generator E** | **Generator F** |
| **Interrogation with CW** | All SIF Modes | P1 and P3 | P2 and P4 | P1 and P3 | P2 and P4 | — | — |
| | P1 - P2 Only | P1 | P2 | P1 | P2 | — | — |
| | P1 Only | P1 | — | P1 | — | — | — |
| | DME 12 and 30 us | P1 | P2 | P1 | P2 | — | — |
| | Mode S | P5 | P1, P2 and P6 | P5 | P1, P2 and P6 | — | — |
| | Interference Pulses | — | — | — | — | P1 | P2 |

| UAT Instrument (ADS-B, TIS-B and FIS-B Payload Generation) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Test Mode** | **TX Type** | **Top Antenna** | | **Bottom Antenna** | | | |
| | | **Generator A** | **Generator B** | **Generator C** | **Generator D** | **Generator E** | **Generator F** |
| **UAT Scenario** | UAT RX 1 | 978 MHz | 1030 MHz | — | — | — | — |
| | UAT RX 2 | — | — | 978 MHz | 1030 MHz | — | — |

| Multi-Receiver Generator Assignments | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Test Mode** | **[?]** | **Top** | **Top** | **Bottom** | **Bottom** | **Top or Bottom** | **Top or Bottom** |
| | | **Generator A** | **Generator B** | **Generator C** | **Generator D** | **Generator E** | **Generator F** |
| **Scenario** | UAT | 978 MHz | — | 978 MHz | — | — | — |
| | 1090 Targets | — | 1090 MHz | — | 1090 MHz | — | — |
| | 1030 Messages | — | — | — | — | — | 1030 MHz |
| **Block** | SIF Modes Reply | 1090 MHz | — | 1090 MHz | — | — | — |
| | Mode S Reply | 1090 MHz | — | 1090 MHz | — | — | — |
| **DO-260** | Normal (User Defined) | 1090 MHz | 1090 MHz | 1090 MHz | 1090 MHz | 1090 MHz | 1090 MHz |
| | Altered Preamble | 1090 MHz | — | 1090 MHz | — | — | — |
| | Bit Failures | 1090 MHz | — | 1090 MHz | — | — | — |
| | Overlapping Pulses | 1090 MHz | — | 1090 MHz | — | — | — |
| | Preamble Validation | 1090 MHz | — | 1090 MHz | — | — | — |
| | Confidence Test | 1090 MHz | — | 1090 MHz | — | — | — |

| RGS-2000NG Generator Matrix, TCAS Instrument | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Test Mode** | **Gen Setup Configuration** | **1090 MHz Top or Bottom** | **1030 MH Top or Bottom** | **1090 MHz Top or Bottom** | **1090 MHz Top or Bottom** | **1090 MHz Top or Bottom** | **1090 MHz Top or Bottom** |
| | | **Generator A** | **Generator B** | **Generator C** | **Generator D** | **Generator E** | **Generator F** |
| **TCAS - Directional & Omni, Scenario** | Dynamic: Gen A All Modes | TCAS Replies | — | — | — | — | — |
| | Dynamic: Gen B All Modes | — | — | TCAS Replies | — | — | — |
| | Dynamic: Gen D All Modes | — | — | — | TCAS Replies | — | — |
| | Static: Gen A All Modes | TCAS Replies | — | — | — | — | — |
| | Static: Gen C All Modes | — | — | TCAS Replies | — | — | — |
| | Static: Gen D All Modes | — | — | — | TCAS Replies | — | — |
| | Ground | — | Mode S Interroga-tions | — | — | — | — |
| | Video: Gen A Block | TCAS Replies | — | — | — | — | — |
| | Video: Gen B Block | — | — | TCAS Replies | — | — | — |
| | Video: Gen C Block | — | — | — | TCAS Replies | — | — |

### 4.1.8 INSTALL THE RF AMPLIFIER

| STEP | PROCEDURE |
|---|---|
| **1** | Press the Test Set’s Front Panel Power Button to turn OFF the Test Set. |
| **2** | Connect the 25 pin ribbon cable (provided with the RF Amplifier) from the AUX CONTROL Connector (Rear Panel) (RF Amplifier) to the AUX CONTROL Connector (Rear Panel) (Test Set). |
| **3** | Using the RF cables (provided with the RF Amplifier), connect the RF cables to the RF ports (RF Amplifier) and the RF ports (Test Set). |
| **4** | Connect the RF cables from the chamber to the RF ports (RF Amplifier) (Rear Panel). |
| **5** | Press the Test Set’s Front Panel Power Button to turn OFF the Test Set. The Test Set provides power to the RF Amplifier so the Power Indicator on the RF Amplifier is illuminated once power is applied to the Test Set. Go to the Home Screen. |

### 4.1.9 ENTER THE OWN AIRCRAFT INFORMATION

| STEP | PROCEDURE |
|---|---|
| **1** | Go to the ***Home Screen***. |
| **2** | Select the ***TCAS*** Softkey to display the TCAS Home Screen. |
| **3** | Select the ***Own Aircraft*** Softkey to display the TCAS Own Aircraft Screen. |
| **4** | Use the fields or softkeys on the TCAS Own Aircraft Screen to enter the appropriate information. |

### 4.1.10 SET UP A STATIC ATCRBS (MODE C) INTRUDER

| STEP | PROCEDURE |
|---|---|
| **1** | Go to the ***Home Screen***. |
| **2** | Select the ***TCAS*** Softkey to display the TCAS Home Screen. |
| **3** | Select the ***Scenario*** Softkey to display the TCAS Scenario Screen. |
| **4** | Use the ***Scenario Time*** Field or Settings Softkey to enter the scenario time. |
| **5** | Set the number of static intruders to at least 1 using the ***Number of Static Intruders*** Field or Settings Softkey. |
| **6** | Select the ***Intruders*** Softkey to edit the intruder information. Select Mode C in the ***Intruder Mode*** Field or Settings Softkey to display the Static Mode C Screen. |
| **7** | If more than 1 Intruder is being defined, select the intruder to be defined from the Number Field on the Intruders Screen. |
| **8** | Use the controls on the Static Mode C Screen to enter the information for the ATCRBS intruder. |

| **Static Mode C Minimum Parameters** | | |
|---|---|---|
| **Parameter** | **Default** | **Selection (Range)** |
| Tx Channel | Gen A | Gen A, Gen C or Gen D |
| Altitude | 1000 | -1000 to 126700 feet |
| Bearing | 0 | 0° to 359° |
| Range | 0 | 0 to 160 nmi |
| Latitude | | -90° to 90° |
| Longitude | | -180° to 180° |
| Reply Power | -20 | Low Power -90 to -20 dBm<br>High Power -69 to 1 dBm |
| Starting at | 0 | 0 to Scenario Duration |
| Stopping at | Scenario Duration | 0 to Scenario Duration |
| Enable | Enable | Enable/Disable |
| Reply | ON | ON/OFF |
| Altitude Reporting | ON | ON/OFF |
| WS1 | 0 | 0 to 255 |
| WS2 | 0 | 0 to 255 |
| Reply Antenna (WS1) | By Altitude | Bottom, Top, Both or By Altitude |
| Reply Antenna (WS2) | By Altitude | Bottom, Top, Both or By Altitude |

| Static Mode C Minimum Parameters | | |
|---|---|---|
| **Parameter** | **Default** | **Selection (Range)** |
| Reply Quadrant (WS1) | Forward | Forward, Right, After, Left, Any Quadrant or By Location |
| Reply Quadrant (WS2) | Forward | Forward, Right, After, Left, Any Quadrant or By Location |
| Mode A Code | 0000 | 0000 to 7777 (Octal) |

**NOTE: FOR ALL INTRUDERS, THE LOCATION HAS BEEN ENTERED USING THE RANGE AND BEARING OR LATITUDE AND LONGITUDE. IF THE RANGE AND BEARING IS USED, THE TEST SET CALCULATES THE LATITUDE AND LONGITUDE OF THE INTRUDER. IF LATITUDE AND LONGITUDE IS USED, THE TEST SET CALCULATES THE RANGE AND BEARING FROM THE OWN AIRCRAFT.**

STEP PROCEDURE (CONT)

**9** When all the required information has been entered, press the ***Return*** Softkey to return to the TCAS Scenario Screen.

**10** To start the scenario, use the ***Scenario*** Softkey. Once the scenario has started, the ***Run Time*** Field on the top of the Scenario Screen changes with the current scenario time.

**11** If the scenario terminates, the ***Scenario*** Softkey returns to the OFF position. To terminate the scenario before the total scenario time, change the ***Scenario*** Softkey to the OFF position.

### 4.1.11 SET UP A DYNAMIC ATCRBS (MODE C) INTRUDER

STEP PROCEDURE

**1** Go to the ***Home Screen***.

**2** Select the ***TCAS*** Softkey to display the TCAS Home Screen.

**3** Select the ***Scenario*** Softkey to display the TCAS Scenario Screen.

**4** Use the ***Scenario Time*** Field or Settings Softkey to enter the scenario time.

**5** Set the number of dynamic intruders to at least 1 using the ***Number of Dynamic Intruders*** Field or Settings Softkey.

**6** Select the ***Intruders*** Softkey to edit the intruder information. Select Mode C in the ***Intruder Mode*** Field or Settings Softkey to display the Dynamic Mode C Screen.

**7** If more than 1 Intruder is being defined, select the intruder to be defined from the Number Field on the Intruders Screen.

**8** Use the controls on the Dynamic Mode C Screen to enter the information for the ATCRBS intruder.

| Dynamic Mode C Minimum Parameters | | |
|---|---|---|
| **Parameter** | **Default** | **Selection (Range)** |
| Tx Channel | Gen A | Gen A, Gen C or Gen D |
| Altitude | 1000 | -1000 to 126700 feet |
| Bearing | 0 | 0° to 359° |
| Range | 0 | 0 to 160 nmi |
| Latitude | | -90° to 90° |
| Longitude | | -180° to 180° |
| Velocity | 0 | 0 to 2000 knots |

| Dynamic Mode C Minimum Parameters | | |
|---|---|---|
| **Parameter** | **Default** | **Selection (Range)** |
| Vertical Speed | 0 | -32576 to 32576 ft/min |
| Track | 0 | -180° to 180° |
| Reply Power | -20 | Low Power -90 to -20 dBm<br>High Power -69 to 1 dBm |
| Starting at | 0 | 0 to Scenario Duration |
| Stopping at | Scenario Duration | 0 to Scenario Duration |
| Enable | Enable | Enable/Disable |
| Reply | ON | ON/OFF |
| Altitude Reporting | ON | ON/OFF |
| WS1 | 0 | 0 to 255 |
| WS2 | 0 | 0 to 255 |
| Reply Antenna (WS1) | By Altitude | Bottom, Top, Both or By Altitude |
| Reply Antenna (WS2) | By Altitude | Bottom, Top, Both or By Altitude |
| Reply Quadrant (WS1) | Forward | Forward, Right, After, Left, Any Quadrant or By Location |
| Reply Quadrant (WS2) | Forward | Forward, Right, After, Left, Any Quadrant or By Location |
| Mode A Code | 0000 | 0000 to 7777 (Octal) |

**NOTE:** **FOR ALL INTRUDERS, THE LOCATION HAS BEEN ENTERED USING THE RANGE AND BEARING OR LATITUDE AND LONGITUDE. IF THE RANGE AND BEARING IS USED, THE TEST SET CALCULATES THE LATITUDE AND LONGITUDE OF THE INTRUDER. IF LATITUDE AND LONGITUDE IS USED, THE TEST SET CALCULATES THE RANGE AND BEARING FROM THE OWN AIRCRAFT.**

STEP PROCEDURE (CONT)

**9** If adding Waypoints, refer to Section 4.1.22, How to Add Waypoints to an Intruder.

**10** When all the required information has been entered, press the ***Return*** Softkey to return to the TCAS Scenario Screen.

**11** To start the scenario, use the ***Scenario*** Softkey. Once the scenario has started, the ***Run Time*** Field on the top of the Scenario Screen changes with the current scenario time.

**12** If the scenario terminates, the ***Scenario*** Softkey returns to the OFF position. To terminate the scenario before the total scenario time, change the ***Scenario*** Softkey to the OFF position.

### 4.1.12 SET UP A STATIC MODE S INTRUDER

STEP PROCEDURE

1. Go to the ***Home Screen***.
2. Select the ***TCAS*** Softkey to display the TCAS Home Screen.
3. Select the ***Scenario*** Softkey to display the TCAS Scenario Screen.
4. Use the ***Scenario Time*** setting to enter the scenario time.
5. Set the number of static intruders to at least 1 using the ***Number of Static Intruders*** Field or Settings Softkey.
6. Select the ***Intruders*** Softkey to edit the intruder information. Select Mode S TCAS Only in the ***Intruder Mode*** Field or Settings Softkey to display the Static Mode S Screen.
7. If more than 1 Intruder is being defined, select the intruder to be defined from the Number Field on the Intruders Screen.
8. Use the controls on the Static Mode S Screen to enter the information for the Mode S intruder.

| **Static Mode S Minimum Parameters** | | |
|---|---|---|
| **Parameter** | **Default** | **Selection (Range)** |
| Tx Channel | Gen A | Gen A, Gen C or Gen D |
| Altitude | 1000 | -1000 to 126700 feet |
| Bearing | 0 | 0° to 359° |
| Range | 0 | 0 to 160 nmi |
| Latitude | | -90° to 90° |
| Longitude | | -180° to 180° |
| Reply Power | -20 | Low Power -90 to -20 dBm<br>High Power -69 to 1 dBm |
| Reply Antenna | By Altitude | Bottom, Top, Both, Alternating or By Altitude |
| Squitter Power | -50 | Low Power -90 to -20 dBm<br>High Power -69 to 1 dBm |
| Squitter Antenna | Both | Top, Bottom or Both |
| Starting at | 0 | 0 to Scenario Duration |
| Stopping at | Scenario Duration | 0 to Scenario Duration |
| Enable | Enable | Enable/Disable |
| Reply | ON | ON/OFF |
| Squitter | ON | ON/OFF |
| Ground | OFF | ON/OFF |
| Crosslink Capability | OFF | ON/OFF |
| Mode S Address | | 000000 to FFFFFF |
| Altitude Code Mode | Binary | Binary or Gilham |
| Reply Probability | 1 | 0, 0.2, 0.4, 0.6, 0.8 or 1 |
| Squitter Probability | 1 | 0, 0.2, 0.4, 0.6, 0.8 to 1 |
| Mode A Code | 0000 | 0000 to 7777 (Octal) |
| CA | 0 | 0 to7 |

| Static Mode S Minimum Parameters | | |
|---|---|---|
| **Parameter** | **Default** | **Selection (Range)** |
| FS | 0 | 0 to 7 |
| DR | 0 | 0 to 31 |
| UM | 0 | 0 to 63 |
| SL | No TCAS Sensitivity Level | 0 to 7 |
| RI (AQ=0) | No on-board TCAS | 0 to 7 |
| RI(AQ=1) | No Airspeed | 0 to 7 |

**NOTE: FOR ALL INTRUDERS, THE LOCATION HAS BEEN ENTERED USING THE RANGE AND BEARING OR LATITUDE AND LONGITUDE. IF THE RANGE AND BEARING IS USED, THE TEST SET CALCULATES THE LATITUDE AND LONGITUDE OF THE INTRUDER. IF LATITUDE AND LONGITUDE IS USED, THE TEST SET CALCULATES THE RANGE AND BEARING FROM THE OWN AIRCRAFT.**

STEP PROCEDURE (CONT)

**9** To include a coordination message, refer to Section 4.1.17, How to Add Coordinations to an Intruder.

**10** To include a broadcast message, refer to Section 4.1.18, How to Add Broadcasts to an Intruder.

**11** If adding DF16 Replies, refer to Section 4.1.19, How to Add DF16 Replies to an Intruder.

**12** If adding UFO’s, refer to Section 4.1.20, How to Add UFO’s to an Intruder.

**13** If adding One-Shot Data, refer to Section 4.1.21, How to Add One-Shot Data to an Intruder.

**14** When all the required information has been entered, press the ***Return*** Softkey to return to the TCAS Scenario Screen.

**15** To start the scenario, use the ***Scenario*** Softkey. Once the scenario has started, the ***Run Time*** Field on the top of the Scenario Screen changes with the current scenario time.

**16** If the scenario terminates, the ***Scenario*** Softkey returns to the OFF position. To terminate the scenario before the total scenario time, change the ***Scenario*** Softkey to the OFF position.

### 4.1.13 SET UP A DYNAMIC MODE S INTRUDER

STEP PROCEDURE

**1** Go to the ***Home Screen***.

**2** Select the ***TCAS*** Softkey to display the TCAS Home Screen.

**3** Select the ***Scenario*** Softkey to display the TCAS Scenario Screen.

**4** Use the ***Scenario Time*** Field or Settings Softkey to enter the scenario time.

**5** Set the number of dynamic intruders to at least 1 using the ***Number of Dynamic Intruders*** Field or Settings Softkey.

**6** Select the ***Intruders*** Softkey to edit the intruder information. Select Mode S TCAS Only in the ***Intruder Mode*** Field or Settings Softkey to display the Dynamic Mode S Screen.

**7** If more than 1 Intruder is being defined, select the intruder to be defined from the Number Field on the Intruders Screen.

**8** Use the controls on the Dynamic Mode S Screen to enter the information for the Mode S intruder. The Dynamic Mode S Screen is similar to the static, and the user is allowed to enter the velocity, vertical speed and track direction.

**Dynamic Mode S Minimum Parameters**

| Parameter | Default | Selection (Range) |
|---|---|---|
| Tx Channel | Gen A | Gen A, Gen C or Gen D |
| Altitude | 1000 | -1000 to 126700 feet |
| Bearing | 0 | 0° to 359° |
| Range | 0 | 0 to 160 nmi |
| Latitude | | -90° to 90° |
| Longitude | | -180° to 180° |
| Velocity | 0 | 0 to 2000 knots |
| Vertical Speed | 0 | 32576 to 32576 ft/min |
| Track | 0 | -180° to 180° |
| Reply Power | -20 | Low Power -90 to -20 dBm<br>High Power -69 to 1 dBm |
| Reply Antenna | By Altitude | Bottom, Top, Both, Alternating or By Altitude |
| Squitter Power | -50 | Low Power -90 to -20 dBm<br>High Power -69 to 1 dBm |
| Squitter Antenna | Both | Top, Bottom or Both |
| Starting at | 0 | 0 to Scenario Duration |
| Stopping at | Scenario Duration | 0 to Scenario Duration |
| Enable | Enable | Enable/Disable |
| Reply | ON | ON/OFF |
| Squitter | ON | ON/OFF |
| Ground | OFF | ON/OFF |
| Crosslink Capability | OFF | ON/OFF |
| Mode S Address | | 000000 to FFFFFF |

| Dynamic Mode S Minimum Parameters | | |
|---|---|---|
| **Parameter** | **Default** | **Selection (Range)** |
| Altitude Code Mode | Binary | Binary or Gilham |
| Reply Probability | 1 | 0, 0.2, 0.4, 0.6, 0.8 or 1 |
| Squitter Probability | 1 | 0, 0.2, 0.4, 0.6, 0.8 or 1 |
| Mode A Code | 0000 | 0000 or 7777 (Octal) |
| CA | 0 | 0 to 7 |
| FS | 0 | 0 to 7 |
| DR | 0 | 0 to 31 |
| UM | 0 | 0 to 63 |
| SL | No TCAS Sensitivity Level | 0 to 7 |
| RI (AQ=0) | No on-board TCAS | 0 to 7 |
| RI(AQ=1) | No Airspeed | 0 to 7 |

**NOTE: FOR ALL INTRUDERS, THE LOCATION HAS BEEN ENTERED USING THE RANGE AND BEARING OR LATITUDE AND LONGITUDE. IF THE RANGE AND BEARING IS USED, THE TEST SET CALCULATES THE LATITUDE AND LONGITUDE OF THE INTRUDER. IF LATITUDE AND LONGITUDE IS USED, THE TEST SET CALCULATES THE RANGE AND BEARING FROM THE OWN AIRCRAFT.**

STEP PROCEDURE (CONT)

**9** To include a coordination message, refer to Section 4.1.17, How to Add Coordinations to an Intruder.

**10** To include a broadcast message, refer to Section 4.1.18, How to Add Broadcasts to an Intruder.

**11** If adding DF16 Replies, refer to Section 4.1.19, How to Add DF16 Replies to an Intruder.

**12** If adding UFO’s, refer to Section 4.1.20, How to Add UFO’s to an Intruder.

**13** If adding One-Shot Data, refer to Section 4.1.21, How to Add One-Shot Data to an Intruder.

**14** If adding Waypoints, refer to Section 4.1.22, How to Add Waypoints to an Intruder.

**15** When all the required information has been entered, press the ***Return*** Softkey to return to the TCAS Scenario Screen.

**16** To start the scenario, use the ***Scenario*** Softkey. Once the scenario has started, the ***Run Time*** Field on the top of the Scenario Screen changes with the current scenario time.

**17** If the scenario terminates, the ***Scenario*** Softkey returns to the OFF position. To terminate the scenario before the total scenario time, change the ***Scenario*** Softkey to the OFF position.

### 4.1.14 SET UP A STATIC MODE S EXTENDED INTRUDER

STEP PROCEDURE

**1** Go to the ***Home Screen***.

**2** Select the ***TCAS*** Softkey to display the TCAS Home Screen.

**3** Select the ***Scenario*** Softkey to display the TCAS Scenario Screen.

**4** Use the ***Scenario Time*** Field or Settings Softkey to enter the scenario time.

**5** Set the number of static intruders to at least 1 using the ***Number of Static Intruders*** Field or Settings Softkey.

**6** Select the ***Intruders*** Softkey to edit the intruder information. Select Mode S Extended in the ***Intruder Mode*** Field or Settings Softkey to display the Static Mode S Extended Screen.

**7** If more than 1 Intruder is being defined, select the intruder to be defined from the Number Field on the Intruders Screen.

**8** Use the controls on the Static Mode S Extended Screen to enter the information for the Mode S Extended intruder.

| **Static Mode S Extended Minimum Parameters** | | |
|---|---|---|
| **Parameter** | **Default** | **Selection (Range)** |
| Tx Channel | Gen A | Gen A, Gen C or Gen D |
| Altitude | 1000 | -1000 to 126700 feet |
| Bearing | 0 | 0° to 359° |
| Range | 0 | 0 to 160 nmi |
| Latitude | | -90° to 90° |
| Longitude | | -180° to 180° |
| Velocity | 0 | 0 to 2000 knots |
| Vertical Speed | 0 | 32576 to 32576 ft/min |
| Track | 0 | -180° to 180° |
| Reply Power | -20 | Low Power -90 to -20 dBm<br>High Power -69 to 1 dBm |
| Reply Antenna | By Altitude | Bottom, Top, Both, Alternating or By Altitude |
| Squitter Power | -50 | Low Power -90 to -20 dBm<br>High Power -69 to 1 dBm |
| Squitter Antenna | Both | Top, Bottom or Both |
| Starting at | 0 | 0 to Scenario Duration |
| Stopping at | Scenario Duration | 0 to Scenario Duration |
| Enable | Enable | Enable/Disable |
| Reply | ON | ON/OFF |
| Squitter | ON | ON/OFF |
| Ground | OFF | ON/OFF |
| DO-260 Mode | DO-260 | DO-260, DO-260A or DO-260B |
| Crosslink Capability | OFF | ON/OFF |

| Static Mode S Extended Minimum Parameters | | |
|---|---|---|
| **Parameter** | **Default** | **Selection (Range)** |
| Mode S Address | | 000000 to FFFFFF |
| Override Range Calculation | OFF | ON/OFF |
| Altitude Code Mode | Binary | Binary or Gilham |
| Reply Probability | 1 | 0, 0.2, 0.4, 0.6, 0.8 or 1 |
| Squitter Probability | 1 | 0, 0.2, 0.4, 0.6, 0.8 or 1 |
| Mode A Code | 0000 | 0000 to 7777 (Octal) |
| Identification Code | Static (STAxxx) xxx = Intruder Number | Up to 8 characters |
| Identification Type | 1 | 1 to 4 |
| Velocity Type | Ground Speed Normal (1) | 0 to 7 |
| CA | 0 | 0 to 7 |
| FS | 0 | 0 to 7 |
| DR | 0 | 0 to 31 |
| UM | 0 | 0 to 63 |
| SL | No TCAS Sensitivity Level | 0 to 7 |
| RI (AQ=0) | No on-board TCAS | 0 to 7 |
| RI(AQ=1) | No Airspeed | 0 to 7 |
| RI(DF=16) | No on-board TCAS | 0 to 15 |

**NOTE: FOR ALL INTRUDERS, THE LOCATION HAS BEEN ENTERED USING THE RANGE AND BEARING OR LATITUDE AND LONGITUDE. IF THE RANGE AND BEARING IS USED, THE TEST SET CALCULATES THE LATITUDE AND LONGITUDE OF THE INTRUDER. IF LATITUDE AND LONGITUDE IS USED, THE TEST SET CALCULATES THE RANGE AND BEARING FROM THE OWN AIRCRAFT.**

STEP PROCEDURE (CONT)

**9** If adding Mode S Squitters, refer to Section 4.1.16, How to Add Mode S Squitters to an Intruder.

**10** To include a coordination message, refer to Section 4.1.17, How to Add Coordinations to an Intruder.

**11** To include a broadcast message, refer to Section 4.1.18, How to Add Broadcasts to an Intruder.

**12** If adding DF16 Replies, refer to Section 4.1.19, How to Add DF16 Replies to an Intruder.

**13** If adding UFO’s, refer to Section 4.1.20, How to Add UFO’s to an Intruder.

**14** When all the required information has been entered, press the ***Return*** Softkey to return to the TCAS Scenario Screen.

**15** To start the scenario, use the ***Scenario*** Softkey. Once the scenario has started, the ***Run Time*** Field on the top of the Scenario ***Screen*** changes with the current scenario time.

**16** If the scenario terminates, the ***Scenario*** Softkey returns to the OFF position. To terminate the scenario before the total scenario time, change the ***Scenario*** Softkey to the OFF position.

### 4.1.15 SET UP A DYNAMIC MODE S EXTENDED INTRUDER

STEP PROCEDURE

**1** Go to the ***Home Screen***.

**2** Select the ***TCAS*** Softkey to display the TCAS Home Screen.

**3** Select the ***Scenario*** Softkey to display the TCAS Scenario Screen.

**4** Use the ***Scenario Time*** Field or Settings Softkey to enter the scenario time.

**5** Set the number of dynamic intruders to at least 1 using the ***Number of Dynamic Intruders*** Field or Settings Softkey.

**6** Select the ***Intruders*** Softkey to edit the intruder information. Select Mode S Extended in the ***Intruder Mode*** Field or Settings Softkey to display the Dynamic Mode S Extended Screen.

**7** If more than 1 Intruder is being defined, select the intruder to be defined from the Number Field on the Intruders Screen.

**8** Use the controls on the Dynamic Mode S Extended Screen to enter the information for the Mode S Extended intruder.

**Dynamic Mode S Extended Minimum Parameters**

| Parameter | Default | Selection (Range) |
|---|---|---|
| Tx Channel | Gen A | Gen A, Gen C or Gen D |
| Altitude | 1000 | -1000 to 126700 feet |
| Bearing | 0 | 0° to 359° |
| Range | 0 | 0 to 160 nmi |
| Latitude | 0 | -90° to 90° |
| Longitude | 0 | -180° to 180° |
| Velocity | 0 | 0 to 2000 knots |
| Vertical Speed | 0 | -32576 to 32576 ft/min |
| Track | 0 | -180° to 180° |
| Reply Power | -50 | Low Power -90 to -20 dBm<br>High Power -69 to 1 dBm |
| Reply Antenna | By Altitude | Bottom, Top, Both, Alternating or By Altitude |
| Squitter Power | -50 | Low Power -90 to -20 dBm<br>High Power -69 to 1 dBm |
| Squitter Antenna | Both | Top, Bottom or Both |
| Starting at | 0 | 0 to Scenario Duration |
| Stopping at | Scenario Duration | 0 to Scenario Duration |
| Enable | Enable | Enable/Disable |
| Reply | ON | ON/OFF |
| Squitter | ON | ON/OFF |
| Ground | OFF | ON/OFF |
| Crosslink Capability | OFF | ON/OFF |
| Mode S Address | | 000000 to FFFFFF |
| Altitude Code Mode | Binary | Binary or Gilham |

| Dynamic Mode S Extended Minimum Parameters | | |
|---|---|---|
| **Parameter** | **Default** | **Selection (Range)** |
| Reply Probability | 1 | 0, 0.2, 0.4, 0.6, 0.8 or 1 |
| Squitter Probability | 1 | 0, 0.2, 0.4, 0.6, 0.8 or 1 |
| Mode A Code | 0000 | 0000 to 7777 (Octal) |
| CA | 0 | 0 to 7 |
| FS | 0 | 0 to 7 |
| DR | 0 | 0 to 31 |
| UM | 0 | 0 to 63 |
| SL | No TCAS Sensitivity Level | 0 to 7 |
| RI (AQ=0) | No on-board TCAS | 0 to 7 |
| RI(AQ=1) | No Airspeed | 0 to 7 |

**NOTE: FOR ALL INTRUDERS, THE LOCATION HAS BEEN ENTERED USING THE RANGE AND BEARING OR LATITUDE AND LONGITUDE. IF THE RANGE AND BEARING IS USED, THE TEST SET CALCULATES THE LATITUDE AND LONGITUDE OF THE INTRUDER. IF LATITUDE AND LONGITUDE IS USED, THE TEST SET CALCULATES THE RANGE AND BEARING FROM THE OWN AIRCRAFT.**

STEP PROCEDURE (CONT)

**9** If adding Mode S Squitters, refer to Section 4.1.16, How to Add Mode S Squitters to an Intruder.

**10** To include a coordination message, refer to Section 4.1.17, How to Add Coordinations to an Intruder.

**11** To include a broadcast message, refer to Section 4.1.18, How to Add Broadcasts to an Intruder.

**12** If adding DF16 Replies, refer to Section 4.1.19, How to Add DF16 Replies to an Intruder.

**13** If adding UFO's, refer to Section 4.1.20, How to Add UFO's to an Intruder.

**14** If adding Waypoints, refer to Section 4.1.22, How to Add Waypoints to an Intruder.

**15** When all the required information has been entered, press the ***Return*** Softkey to return to the TCAS Scenario Screen.

**16** To start the scenario, use the ***Scenario*** Softkey. Once the scenario has started, the ***Run Time*** Field on the top of the Scenario Screen changes with the current scenario time.

**17** If the scenario terminates, the ***Scenario*** Softkey returns to the OFF position. To terminate the scenario before the total scenario time, change the ***Scenario*** Softkey to the OFF position.

### 4.1.16 ADD MODE S SQUITTERS TO AN INTRUDER

**PRELIMINARY PROCEDURES:**

User should have completed the initial steps of the appropriate intruder setup procedure (i.e., <Hyperlink>Section 4.1.15, How to Set Up a Dynamic Mode S Extended Intruder.

User should be on the TCAS Intruders Screen.

STEP PROCEDURE

**1** Press the ***Mode S Squitters*** Softkey from the TCAS Intruders Screen Softkey Menu.

**2** To configure ME data, select a squitter from the squitter table and press the ME Fields Softkey. When all the required information has been entered, press the ***Return*** Softkey to return to the Mode S Squitters Softkey Menu

**3** To add a BDS Register Number, press the ***BDS Register Number*** Softkey.

**4** Press the ***Add*** Softkey. A new row is added to the table. Verify the row is selected from the table.

**5** Select the Register Name Menu on the Softkey Menu. Select a Register Name. Press the OK Button to confirm name selection and close the dialog window.

**6** Configure remaining parameters using the Softkey Menu.

**7** When all the required information has been entered, press the ***Return*** Softkey to return to the TCAS Scenario Screen.

**FOLLOW-UP PROCEDURE:**

Complete the remaining steps of the Scenario configuration procedure (i.e., <Hyperlink>Section 4.1.15, How to Set Up a Dynamic Mode S Extended Intruder).

### 4.1.17 ADD COORDINATIONS TO AN INTRUDER

**PRELIMINARY PROCEDURES:**

User should have completed the initial steps of the appropriate intruder setup procedure (i.e., <Hyperlink>Section 4.1.15, How to Set Up a Dynamic Mode S Extended Intruder).

User should be on the TCAS Intruders Screen.

STEP PROCEDURE

**1** Press the ***Coordinations*** Softkey from the TCAS Intruders Screen Softkey Menu.

**2** Press the ***Add*** Softkey. A new row is added to the table.

**3** Configure parameters using the Softkey Menu.

**4** When all the required information has been entered, press the ***Return*** Softkey to return to the TCAS Intruders Screen.

**FOLLOW-UP PROCEDURE:**

Complete the remaining steps of the Scenario configuration procedure (i.e., <Hyperlink>Section 4.1.15, How to Set Up a Dynamic Mode S Extended Intruder).

### 4.1.18 ADD BROADCASTS TO AN INTRUDER

**PRELIMINARY PROCEDURES:**

User should have completed the initial steps of the appropriate intruder setup procedure (i.e., <Hyperlink>Section 4.1.15, How to Set Up a Dynamic Mode S Extended Intruder.

User should be on the TCAS Intruders Screen.

| STEP | PROCEDURE |
|---|---|
| **1** | Press the ***Broadcasts*** Softkey from the TCAS Intruders Screen Softkey Menu. |
| **2** | Press the ***Add*** Softkey. A new row is added to the table. |
| **3** | Configure parameters using the Softkey Menu. |
| **4** | When all the required information has been entered, press the ***Return*** Softkey to return to the TCAS Intruders Screen. |

**FOLLOW-UP PROCEDURE:**

Complete the remaining steps of the Scenario configuration procedure (i.e., <Hyperlink>Section 4.1.15, How to Set Up a Dynamic Mode S Extended Intruder).

### 4.1.19 ADD DF16 REPLIES TO AN INTRUDER

**PRELIMINARY PROCEDURES:**

User should have completed the initial steps of the appropriate intruder setup procedure (i.e., <Hyperlink>Section 4.1.15, How to Set Up a Dynamic Mode S Extended Intruder.

User should be on the TCAS Intruders Screen.

| STEP | PROCEDURE |
|---|---|
| **1** | Press the ***DF16 Replies*** Softkey from the TCAS Intruders Screen Softkey Menu. |
| **2** | Press the ***Add*** Softkey. A new row is added to the table. |
| **3** | Configure parameters using the Softkey Menu. |
| **4** | When all the required information has been entered, press the ***Return*** Softkey to return to the TCAS Intruders Screen. |

**FOLLOW-UP PROCEDURE:**

Complete the remaining steps of the Scenario configuration procedure (i.e., <Hyperlink>Section 4.1.15, How to Set Up a Dynamic Mode S Extended Intruder).

### 4.1.20 ADD UFO'S TO AN INTRUDER

**PRELIMINARY PROCEDURES:**

User should have completed the initial steps of the appropriate intruder setup procedure (i.e., <Hyperlink>Section 4.1.15, How to Set Up a Dynamic Mode S Extended Intruder.

User should be on the TCAS Intruders Screen.

| STEP | PROCEDURE |
|---|---|
| **1** | Press the ***UFO's*** Softkey from the TCAS Intruders Screen Softkey Menu. |
| **2** | Press the ***Add*** Softkey. A new row is added to the table. |
| **3** | Configure parameters using the Softkey Menu. |
| **4** | When all the required information has been entered, press the ***Return*** Softkey to return to the TCAS Intruders Screen. |

**FOLLOW-UP PROCEDURE:**

Complete the remaining steps of the Scenario configuration procedure (i.e., <Hyperlink>Section 4.1.15, How to Set Up a Dynamic Mode S Extended Intruder).

### 4.1.21 ADD ONE-SHOT DATA TO AN INTRUDER

**PRELIMINARY PROCEDURES:**

User should have completed the initial steps of the appropriate intruder setup procedure (i.e., <Hyperlink>Section 4.1.15, How to Set Up a Dynamic Mode S Extended Intruder.

User should be on the TCAS Intruders Screen.

| STEP | PROCEDURE |
|---|---|
| **1** | Press the ***One-Shot Data*** Softkey from the TCAS Intruders Screen Softkey Menu. |
| **2** | Press the ***Add*** Softkey. A new row is added to the table. |
| **3** | Configure parameters using the Softkey Menu. |
| **4** | When all the required information has been entered, press the ***Return*** Softkey to return to the TCAS Intruders Screen. |

**FOLLOW-UP PROCEDURE:**

Complete the remaining steps of the Scenario configuration procedure (i.e., <Hyperlink>Section 4.1.15, How to Set Up a Dynamic Mode S Extended Intruder).

### 4.1.22 ADD WAYPOINTS TO AN INTRUDER

**PRELIMINARY PROCEDURES:**

User should have completed the initial steps of the appropriate intruder setup procedure (i.e., <Hyperlink>Section 4.1.15, How to Set Up a Dynamic Mode S Extended Intruder.

User should be on the TCAS Intruders Screen.

| STEP | PROCEDURE |
|---|---|
| **1** | Press the ***Waypoints*** Softkey from the TCAS Intruders Screen Softkey Menu. |
| **2** | Press the ***Add*** Softkey. A new row is added to the table. Verify the new row is selected. |

**NOTE: WAYPOINTS ARE AUTONUMBERED BY THE TEST SET. DELETING AN EXISTING WAYPOINT UPDATES ALL SUBSEQUENT WAYPOINTS.**

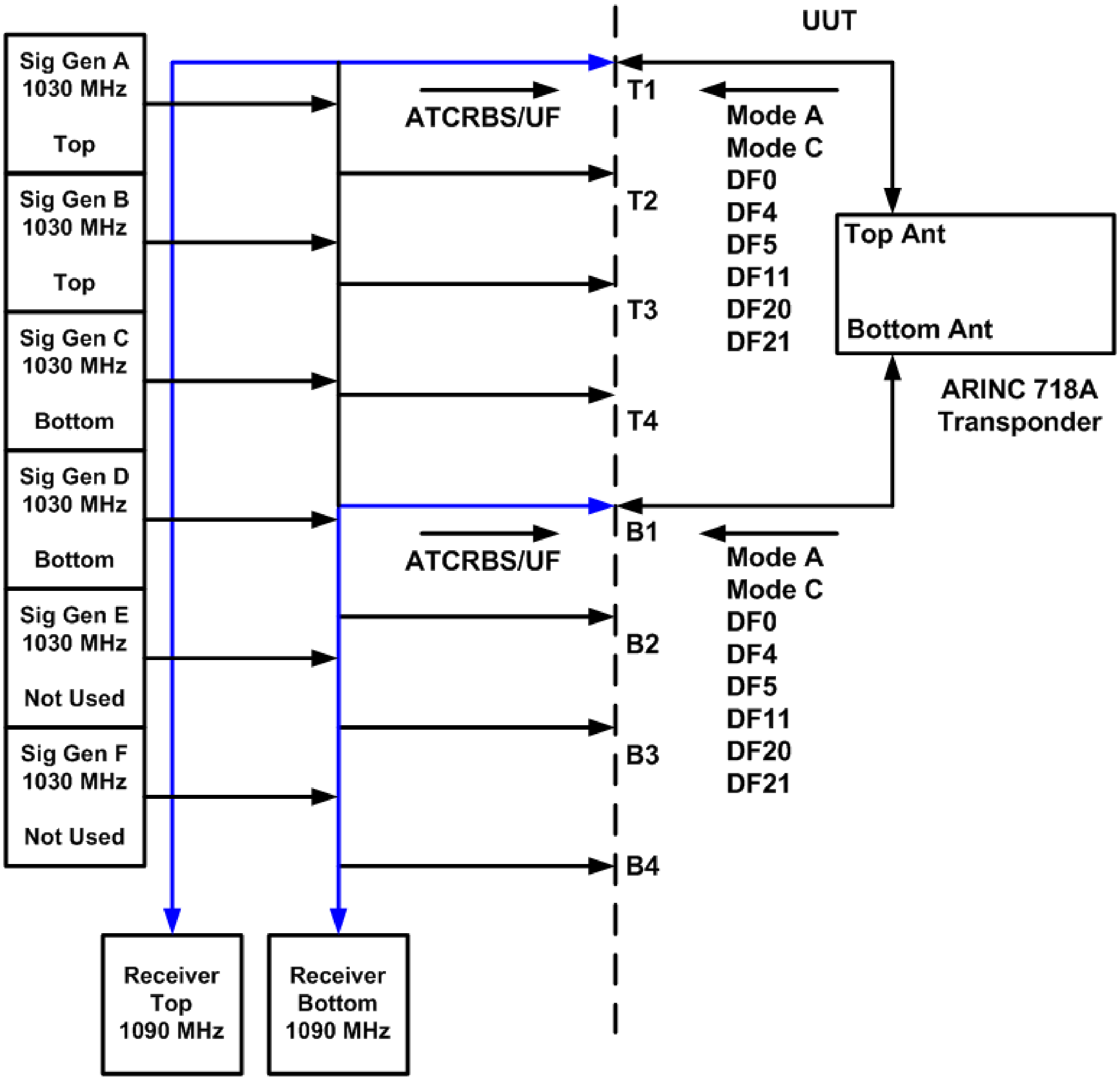
| STEP | PROCEDURE |
|---|---|
| **3** | Configure parameters using the Softkey Menu. |
| **4** | When all required information has been entered, press the ***Return*** Softkey to return to the TCAS Intruders Screen. |

**FOLLOW-UP PROCEDURE:**

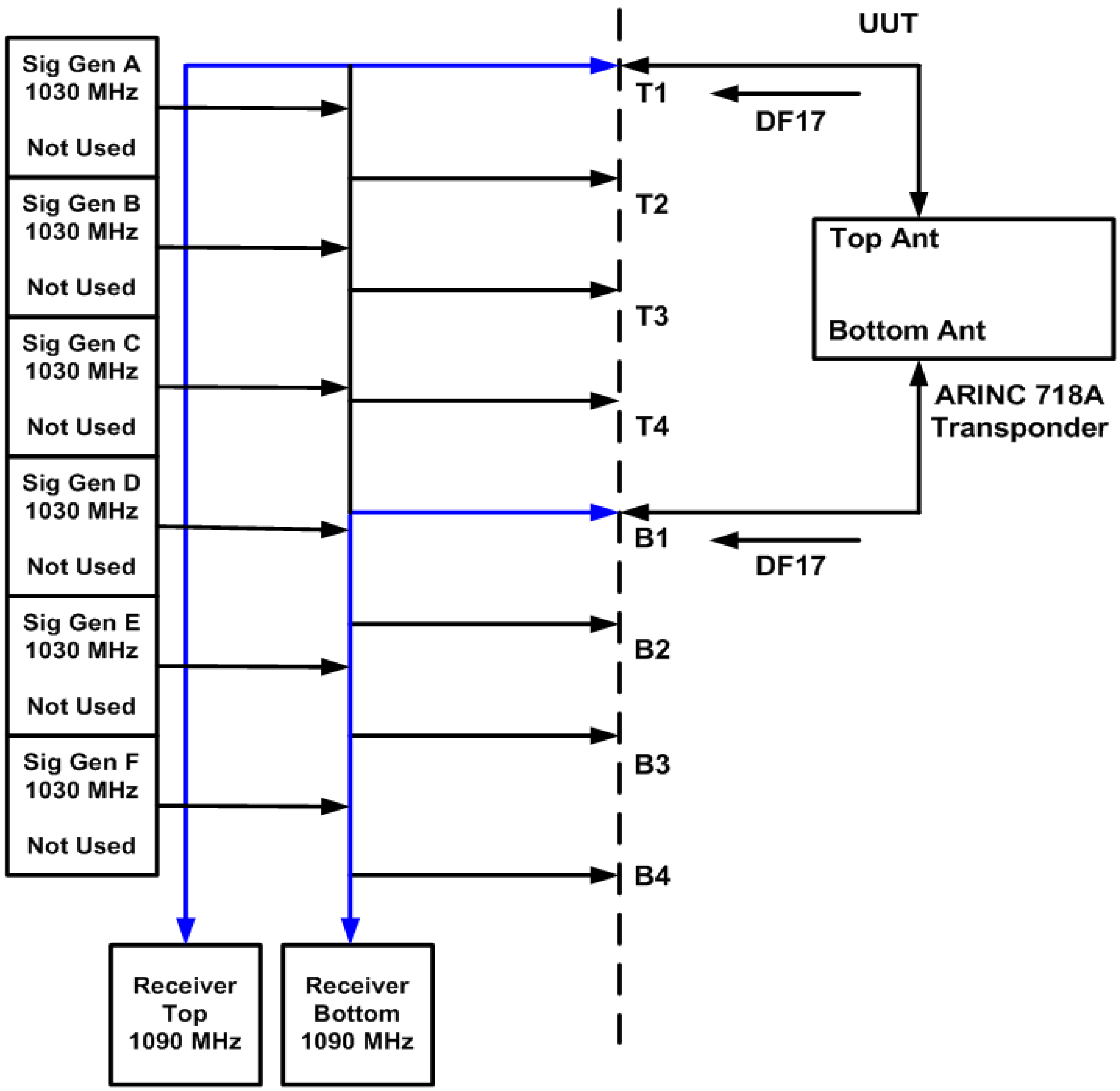
Complete the remaining steps of the Scenario configuration procedure (i.e., <Hyperlink>Section 4.1.15, How to Set Up a Dynamic Mode S Extended Intruder).

## 4.2 TEST CONFIGURATIONS

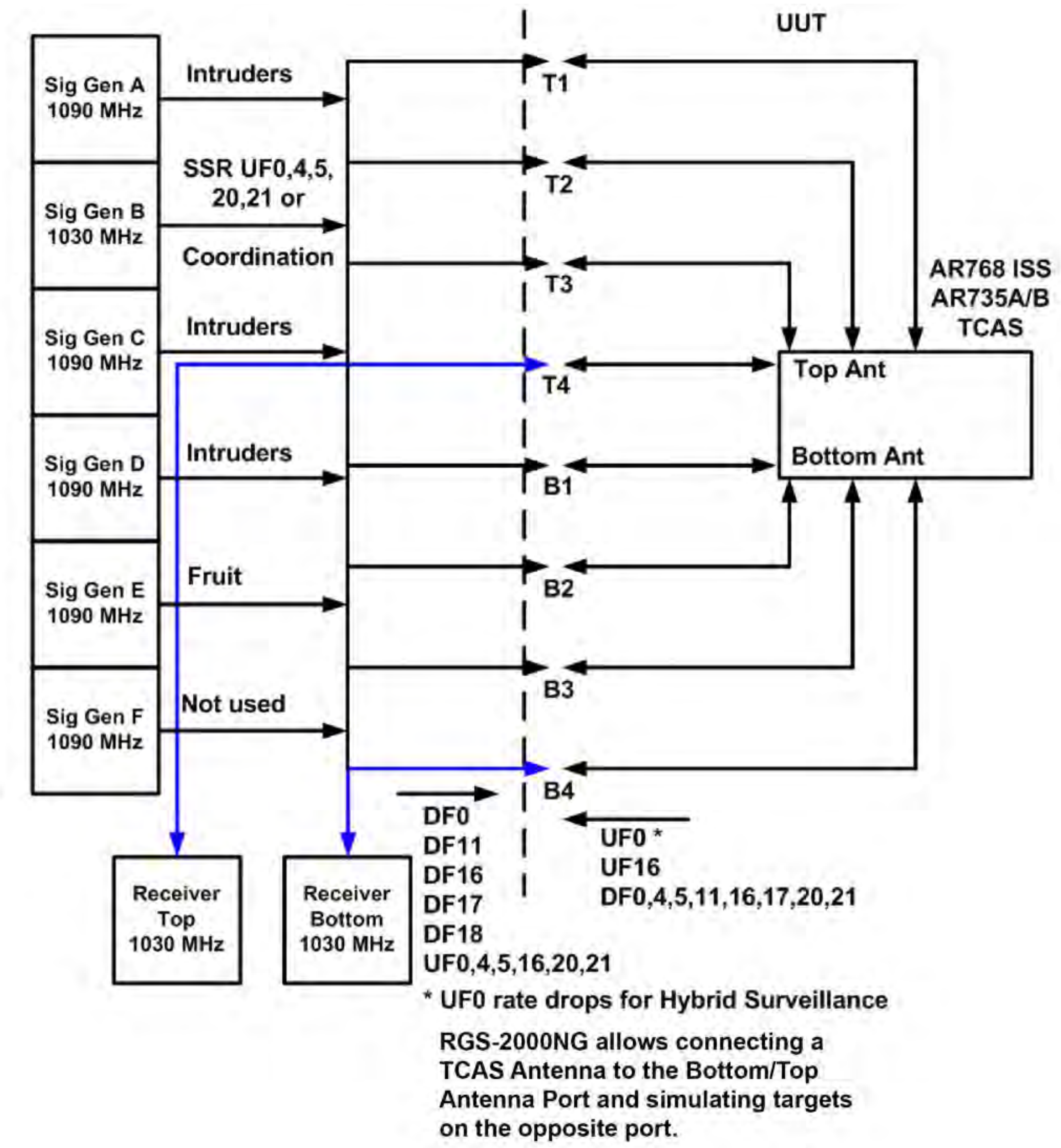
### 4.2.1 TRANSPONDER ATC/MODE S/ELS/EHS TEST CONFIGURATION



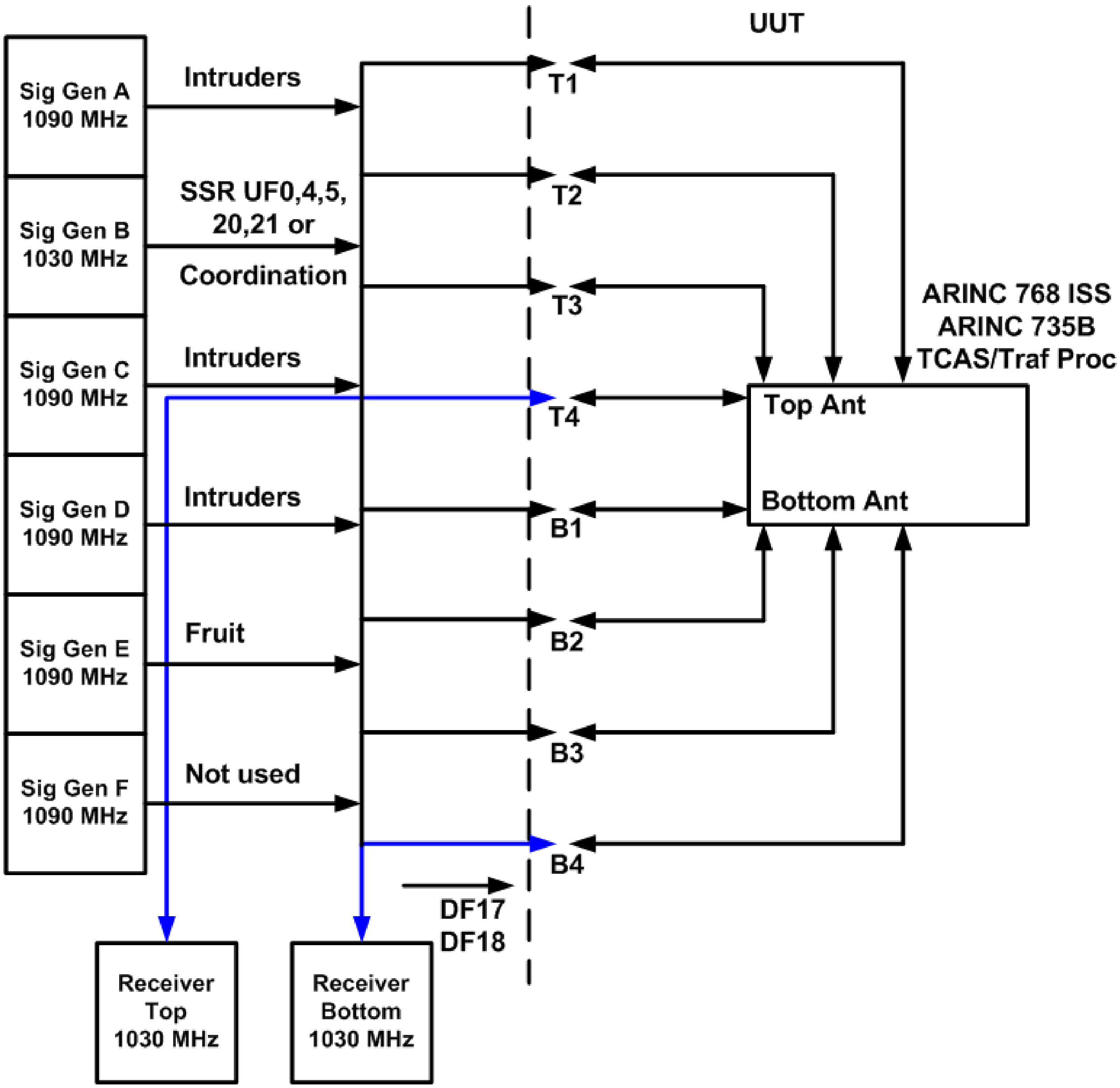
### 4.2.2 TRANSPONDER ADS-B OUT (1090ES) TEST CONFIGURATION



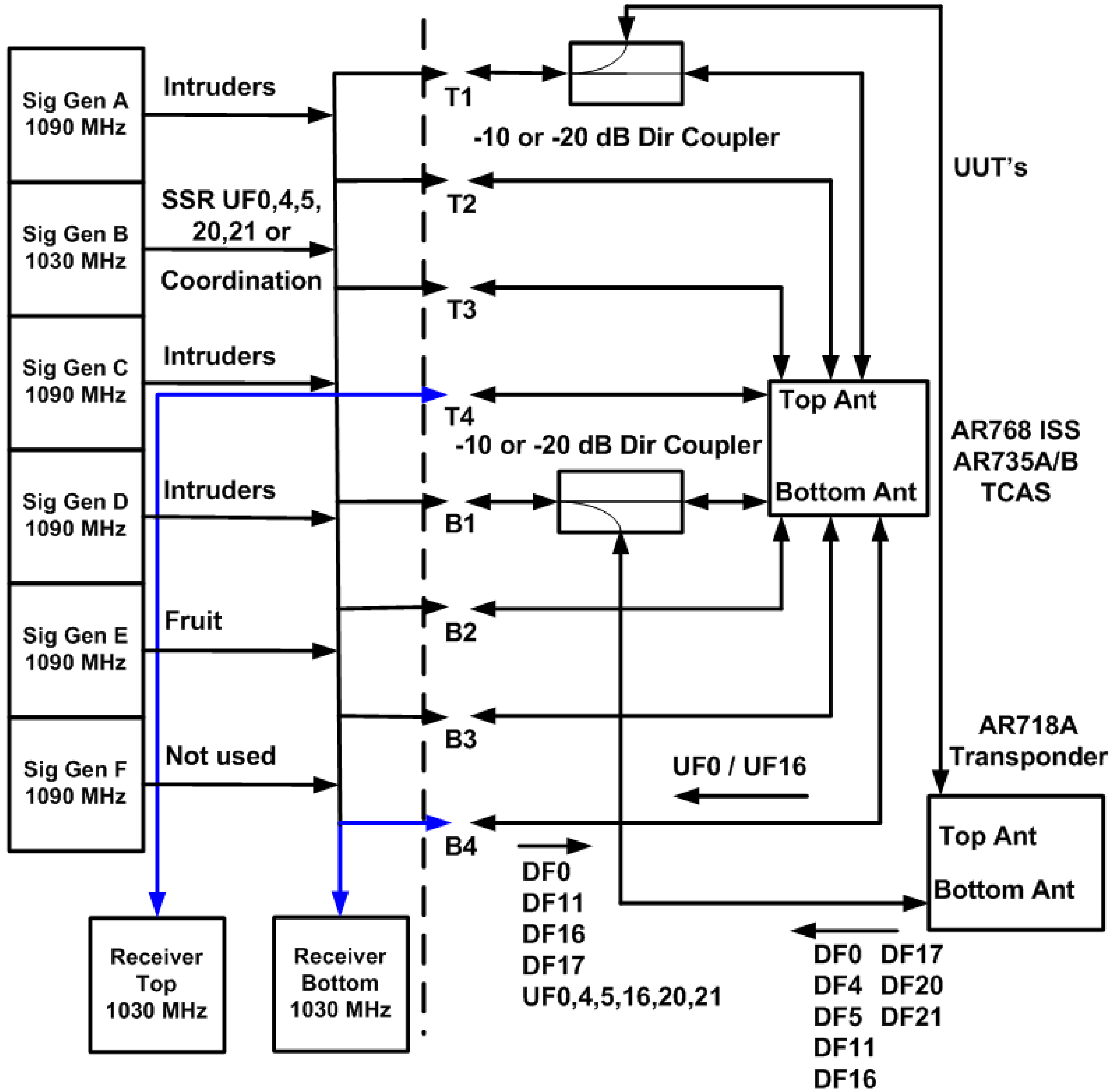
### 4.2.3 TCAS/HYBRID SURVEILLANCE/ITP VERSION 0/1 VALIDATION TEST CONFIGURATION



### 4.2.4 ADS-B IN /CDTI TEST CONFIGURATION



### 4.2.5 TCAS COORDINATED RA TEST CONFIGURATION



# 5. REMOTE OPERATION

## 5.1 OVERVIEW

Functional capabilities within the Unit for specific customers are provided by means of customer specific product keys (for instance UAT functionality although commands are defined, is only enabled for customers that have hardware and software UAT capability).

| | |
|---|---|
| : | The "colon" is used to separate the different command categories. |
| ; | The "semicolon" is used as a sub-command separator within a command category. |
| SP | The "space" is used to separate the sub-commands from the actual sub-command values. Spaces have been used in the command document for readability only those marked SP should be used in the command. All other spaces should be removed. |
| CR(\r) | The Carriage Return, "\r", is used to terminate a command line. |
| Keywords | Keywords are the names of the specific commands or sub-commands (either pre-defined abbreviations or complete command keywords can be used). |
| Values | Values are the alphanumeric values associated with the specific sub-commands. |
| // | The "//" is used to add a comment line within the command structure. |

Return values:

| | |
|---|---|
| # | The "#" is used to indicate a measurement value was unavailable. |
| ? | The "?" is used to indicate the command did not complete correctly. The command will explicitly state if it will return a question mark. |
| * | The "*" is used to indicate the command completed normally. The command will explicitly state if it will return an asterisk. |
| ! | The "!" is placed in the output buffer when a command syntax error occurs. When using the GPIB you can query the status byte to see if the D4 bit is set notifying you that something is waiting in the unit's output buffer. See next paragraph. |

When configuring the GPIB using NI-VISA you can set attributes to flush the output buffer before each write. This should clear any remaining data such as the "!" from the output buffer.

For proper GPIB operation enable EOI at the end of each write.

The Unit can be serial polled via GPIB to receive status of operation. The status byte received from a serial poll has the following representation. The value is returned in hex format. A 20 hex (32 decimal) has bit D5 set indicating "Command Complete/Unit Ready".

| | |
|---|---|
| D0 | Last Command Syntax Error |
| D1 | Execution Error (Detectable Unit Function Failure). Bit reset by GPIB command *CLS. |
| D2 | Not Used |
| D3 | Not Used |
| D4 | Transmitter Queue Not Empty (Data available for GPIB read) |
| D5 | Command Complete/Unit Ready |
| D6 | Not Used |
| D7 | Not Used |

**:RGS:STATUS?**

Command was added after version 17.03.2205 to check this status over Ethernet. This may be checked after each write to see if the previous command succeeded and the unit is ready for further commands.

Communication may be performed using different methods. For example, to set the own aircraft altitude, longitude and latitude, the following two methods could be used to send to commands to the Test Set (both are equivalent).

**Method 1**

:RGS2000NG:OWN:ALTITUDE 10000\r

:RGS2000NG:OWN:LATITUDE 25.8333\r

:RGS2000NG:OWN:LONGITUDE -80.33333\r

**Method 2** **(Example shown uses complete and abbreviated commands.)**

:RGS2000NG:OWN:ALTITUDE 10000;:LATITUDE 25.8333;:LONGITUDE -80.33333\r

:RGS:OWN:ALT 10000;:LAT 25.8333;:LONG -80.33333\r

:RGS2000NG:OWN:ALTITUDE 10000;:LAT 25.8333;:LONGITUDE -80.33333\r

The Unit also accepts commands from different subcommand categories by using the ";" and adding the subcommand structure for the other command. For example, using the previous example, we can also add a factory setting at the end of the command string.

:RGS2000NG:OWN:ALTITUDE 10000;:LATITUDE 25.8333;:LONGITUDE -80.33333;:SETTINGS:FACTORY TCAS\r

Programming suggestions:

After sending the first command that changes the unit to a new instrument mode it is recommended to allow 3 to 5 seconds for the unit to apply the initial settings before sending any further commands. A 30 millisecond delay between commands is recommended.

It is also wise to send the factory reset command (:RGS:SET:FACT TCAS, UAT, MULTI or XPDR) before sending other commands to setup the instrument. This will ensure the generators are configured properly for that mode of operation. Example: Send ":RGS:SCE:TYPE XPDR\r" to set the unit for transponder scenario, then send ":RGS:SET:FACT XPDR\r" to reset the generator to the default for that mode of operation.

## 5.2 ACCEPTED GPIB COMMANDS

### *IDN?

This command returns VIAVI;RGS-2000NG TCAS Test Set;113956

### *CLS

This command resets the status byte and the Touchscreen error log.

### *ESR?

This command returns a decimal value from 0 to 255, in accordance with the following table.

| Bit | Bit Weight | Bit Name | Condition |
|---|---|---|---|
| 7 | 128 | PON | Always 0 |
| 6 | 64 | Not Used | Always 0 |
| 5 | 32 | CME (Command Error) | 0 = No Error; 1 = Error |
| 4 | 16 | EXE (Execution Error) | 0 = No Error; 1 = Error |
| 3 | 8 | DDE | Always 0 |
| 2 | 4 | QYE | Always 0 |
| 1 | 2 | RQC | Always 0 |
| 0 | 1 | OPC (Operation Complete) | 0 = Not Ready; 1 = Complete (Ready) |

### SYSTEM:ERROR?

This command returns one line from the error log in the Touchscreen. Every time that the command is transmitted the next available error will be returned. If there are no more errors to return the following message will be returned: “Error Message Que Empty.”

## 5.3 429 CONFIGURATION

This set of commands allow the user to define the labels and entry port for the Own Aircraft information via 429. These commands only function if the 429 adapter is connected to the Test Set's Front or Rear Panel ATE Connector.

### 5.3.1 LABEL

The following commands allow the user to select the 429 label to associate with the heading, latitude and longitude data. These values cannot be changed while a test or scenario is running.

#### 5.3.1.1 Heading

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:M429}{:HEADING \| :HEAD}{:LABEL}SP{320 \| 314 \| 313}CR |
| **Description:** | This command sets the 429 label for the heading. |
| **Default:** | 320 |
| **Example:** | RGS:M429:HEAD:LABEL 320\r |

#### 5.3.1.2 Latitude

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:M429}{:LATITUDE \| :LAT}{:LABEL}SP{110 \| 254 \| 310}CR |
| **Description:** | This command sets the 429 label for the latitude. |
| **Default:** | 110 |
| **Example:** | :RGS:M429:LAT:LABEL 110\r |

#### 5.3.1.3 Longitude

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:M429}{:LONGITUDE \| :LONG}{:LABEL}SP{111 \| 255 \| 311}CR |
| **Description:** | This command sets the 429 label for the longitude. |
| **Default:** | 111 |
| **Example:** | :RGS:M429:LONG:LABEL 111\r |

### 5.3.2 CHANNEL LOCATION

The following commands allow the user to configure on which of the three 429 ports of the Unit 429 adapter the parameter is received. These values cannot be changed while a test or scenario is running.

#### 5.3.2.1 Altitude

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:M429}{:ALTITUDE \| :ALT}{:POS}SP{A1B1 \| A2B2 \| A3B3}CR |
| **Description:** | This command sets the pin position for the 429 altitude. |
| **Default:** | A1B1 |
| **Example:** | :RGS:M429:ALT:POS A2B2\r |

#### 5.3.2.2 Heading

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:M429}{:HEADING \| :HEAD}{:POS}SP{A1B1 \| A2B2 \| A3B3}CR |
| **Description:** | This command sets the pin position for the 429 heading. |
| **Default:** | A1B1 |
| **Example:** | :RGS:M429:HEAD:POS A2B2\r |

#### 5.3.2.3 Latitude

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:M429}{:LATITUDE \| :LAT}{:POS}SP{A1B1 \| A2B2 \| A3B3}CR |
| **Description:** | This command sets the pin position for the 429 latitude. |
| **Default:** | A1B1 |
| **Example:** | :RGS:M429:LAT:POS A2B2\r |

#### 5.3.2.4 Longitude

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:M429}{:LONGITUDE \| :LONG}{:POS}SP{A1B1 \| A2B2 \| A3B3}CR |
| **Description:** | This command sets the pin position for the 429 longitude. |
| **Default:** | A1B1 |
| **Example:** | :RGS:M429:LONG:POS A2B2\r |

#### 5.3.2.5 UTC Time

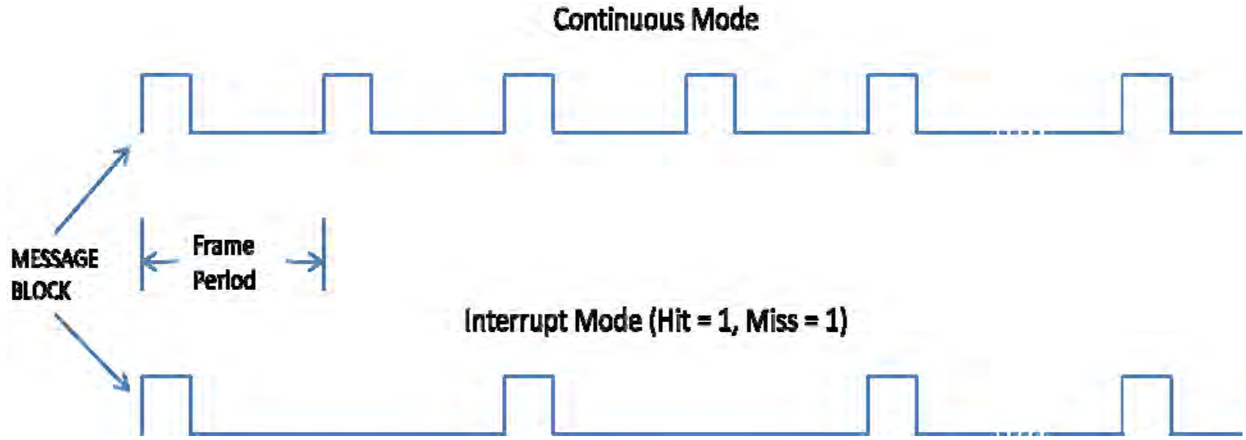
| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:M429}{:UTC}{:POS}SP{A1B1 \| A2B2 \| A3B3}CR |
| **Description:** | This command sets the pin position for the 429 UTC Time. Advisable to send this command to enable time after the pin position is changed. |
| **Default:** | A1B1 |
| **Example:** | :RGS:M429:UTC:POS A1B1\r |

## 5.4 BLOCK TRANSMISSION

This set of commands allows the user to define a transmission block of messages to periodically transmit to the UUT. This set of commands is for block transmission under the TCAS Transmitter Menu.

### 5.4.1 BLOCK PARAMETERS

This set of commands allows the user to define the timing parameters of the Block Transmissions. The illustration below shows the two different modes (Continuous and Interrupt) of Block Transmissions.




#### 5.4.1.1 Frame Period

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:TXBLOCK}{:PERIOD }SP<numeric>CR |
| **Description:** | This command defines the block transmission period in ms. |
| **Numeric:** | 10 to 90000 (decimal ASCII) |
| **Default:** | 100 |
| **Example:** | :RGS:TXBLOCK:PERIOD 10\r |

#### 5.4.1.2 Hit

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:TXBLOCK}{:HIT }SP<numeric>CR |
| **Description:** | This command sets the number of consecutive blocks to transmit. |
| **Numeric:** | 0 to 20 (decimal ASCII) |
| **Default:** | 1 |
| **Example:** | :RGS:TXBLOCK:HIT 5\r |
| **NOTE:** | Only used in interrupt mode. |

#### 5.4.1.3 Miss

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:TXBLOCK}{:MISS }SP<numeric>CR |
| **Description:** | This command sets the number of consecutive non-transmitted blocks. |
| **Numeric:** | 0 to 20 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:TXBLOCK:MISS 6\r |
| **NOTE:** | Only used in interrupt mode. |

### 5.4.1.4 Mode

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:TXBLOCK}{:MODE }SP{CONTINUOUS \| INTERRUPT}CR |
| **Description:** | This command sets the transmission mode. |
| **Default:** | CONTINUOUS |
| **Example:** | :RGS:TXBLOCK:MODE INTERRUPT\r |
| **NOTE:** | If the user selects interrupt mode then the hit and miss count is used. |

### 5.4.1.5 Transmissions

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:TXBLOCK}{:TRANSMISSIONS \| :TRANS}SP{NOLIMIT \| <numeric>}CR |
| **Description:** | This command sets the total number of blocks transmission. |
| **Numeric:** | 1 to 50000 (decimal ASCII) |
| **Default:** | NOLIMIT |
| **Example:** | :RGS:TXBLOCK:TRANS 1000\r |
| **NOTE:** | NOLIMIT begins transmitting after the start command and finishes after a stop command. |

### 5.4.2 LOAD

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:TXBLOCK}{:LOAD}SP<filename>CR |
| **Description:** | This command loads a CSV scenario file (specified filename) from the internal storage area. |
| **Example:** | :RGS:TXBLOCK:LOAD Tx1.csv\r |
| **NOTE:** | “*” is returned upon completion of loading the file. |

### 5.4.3 MESSAGE PARAMETERS

#### 5.4.3.1 Data

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:TXBLOCK:}<message number> {:MESS | :MESSAGE}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the data message for the message selected.</td></tr>
<tr><td>Message Number:</td><td>1 to 1000</td></tr>
<tr><td>Numeric:</td><td>Short message 0 to FFFFFFFFFFFFFF (14 hexadecimal ASCII)<br>Long message 0 to FFFFFFFFFFFFFFFFFFFFFFFFFFFF (28 hexadecimal ASCII)<br>The last six characters are the Mode S Address.<br>ATCRBS Reply 0 to FFF(3 hexadecimal ASCII)</td></tr>
<tr><td>Default:</td><td>Mode S Interrogation | Mode S Message: 00000000000001<br>ATCRBS Reply.: 000</td></tr>
<tr><td>Example:</td><td>:RGS:TXBLOCK:1:MESS ACBDEF12345678\r</td></tr>
</table>

#### 5.4.3.2 Phase

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:TXBLOCK:}<message number>{:PHASE | :PHA }SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the phase of the message selected.</td></tr>
<tr><td>Message Number:</td><td>1 to 1000</td></tr>
<tr><td>Numeric:</td><td>0 to 359 (decimal ASCII)</td></tr>
<tr><td>Default:</td><td>0</td></tr>
<tr><td>Example:</td><td>:RGS:TXBLOCK:2:PHA 45\r</td></tr>
</table>

#### 5.4.3.3 Power Level

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:TXBLOCK:}<message number>{:POWER | :POW}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the power level of the message selected.</td></tr>
<tr><td>Message Number:</td><td>1 to 1000</td></tr>
<tr><td>Numeric:</td><td>High Power Mode: 1 to -69 dBm (decimal ASCII)<br>Low Power Mode: -20 to -90 dBm (decimal ASCII)</td></tr>
<tr><td>Default:</td><td>-20 dBm</td></tr>
<tr><td>Example:</td><td>:RGS:TXBLOCK:1:POW -22\r</td></tr>
</table>

### 5.4.3.4 Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:TXBLOCK:}<message number>{:TIME }SP<numeric>CR |
| **Description:** | This command sets the starting transmission time (in µs) within the block of the message selected. |
| **Message Number:** | 1 to 1000 |
| **Numeric:** | 0 to 89999880 (decimal ASCII) |
| **Default:** | 0 µs.<br>Every additional message defaults 130 µs after previous. Maximum time depends on frame period value. |
| **Example:** | :RGS:TXBLOCK:2:TIME 99\r |

### 5.4.3.5 Type

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:TXBLOCK:}<message number>{:TYPE}SP<numeric>[,<numeric1>]CR | |
| **Description:** | This command sets the type of the message selected. The optional argument <numeric1> defines the ATCRBS Interrogation type. | |
| **Message Number:** | 1 to 1000 | |
| **Numeric:** | 1 to 4 (decimal ASCII) | |
| | **Value** | Type |
| | **1** | Mode S Interrogation |
| | **2** | ATCRBS Interrogation |
| | **3** | Mode S Message. |
| | **4** | ATCRBS Reply. |
| | **Default:** | Mode S Message |
| **Numeric1:** | 1 to 6 (decimal ASCII) | |
| | Valid only if the type of message defined in <Numeric> is ATCRBS Interrogation. | |
| | **Value** | Type |
| | **1** | Mode A |
| | **2** | Mode C |
| | **3** | Mode A Only All Call |
| | **4** | Mode C Only All Call |
| | **5** | Mode A/Mode S All Call |
| | **6** | Mode C/Mode S All Call |
| **Default:** | Mode A | |
| **Example:** | :RGS:TXBLOCK:1:TYPE 2,1\r | |

### 5.4.4 MESSAGE QUANTITY

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:TXBLOCK}{:NMESSAGES \| :NMESS}SP<decimal>CR |
| **Description:** | This command sets the number of the messages. |
| **Numeric:** | 0 to 1000 (decimal ASCII) |
| **Example:** | :RGS:TXBLOCK:NMESS 25\r |

### 5.4.5 RESET

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:TXBLOCK:RESET}CR |
| **Description:** | This command clears the transmission block. |
| **Example:** | :RGS:TXBLOCK:RESET\r |

### 5.4.6 RUN TIME REQUESTS

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{: TXBLOCK }{:TI \| :TIME}?CR |
| **Description:** | This command returns the current transmission block run time. |
| **Return Value:** | Decimal value in ASCII in 1 second resolution |
| **Example:** | :RGS:TXBLOCK:TI?\r |
| **Returns:** | 0 |

### 5.4.7 SAVE

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:TXBLOCK:SAVE}SP<filename>CR |
| **Description:** | This command saves a CSV scenario file (specified filename) to the internal storage area. |
| **Example:** | :RGS:TXBLOCK:SAVE TX2.csv\r |

### 5.4.8 START

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:TXBLOCK:START}CR |
| **Description:** | This command begins the transmission of the block defined. |
| **Return:** | "*" is returned if the start command was able to be performed<br>"?" is returned if the scenario was not able to be started |
| **Example:** | :RGS:TXBLOCK:START\r |

### 5.4.9 STOP

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:TXBLOCK:STOP}CR |
| **Description:** | This command stops the transmission of the block defined. |
| **Example:** | :RGS:TXBLOCK:STOP\r |

## 5.5 MEASUREMENT COMMANDS

This set of commands allows the user to query the Unit to perform measurement on received signal from the UUT. The Unit can perform frequency, power and pulse characteristic measurements on both 1030 and 1090 MHz signals. The Unit can also perform 1030 MHz phase measurements between any of the antenna ports and either T1 or B1 according if top or bottom is selected.

### 5.5.1 DATA FORMAT

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:MEA \| :MEASURE}{:DFORMAT}SP<numeric>CR | |
| **Description:** | This command sets the replies numeric format. | |
| **Numeric:** | 0 to 2 (decimal ASCII) | |
| | **Value** | **Format** |
| | 0 | Hexadecimal |
| | 1 | Decimal (no fractional part) |
| | 2 | Float (fractional part) |
| **Default:** | 1 | |
| **Example:** | :RGS:MEA:DFORMAT 1\r | |

### 5.5.2 FREQUENCY REQUEST

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:MEA \| :MEASURE}{:FREQ? \| :FREQUENCY?} CR |
| **Description:** | This command returns the frequency of the incoming signal. |
| **Return:** | Value is in ASCII data format specified in MHz.<br>In case of the Float data format, the value is returned with four decimal points. |
| **NOTE:** | In order to measure frequency, the TCAS Unit needs to transmit a long P6 pulse without modulation. |
| **Example:** | :RGS:MEA:FREQ?\r |
| **Returns:** | 10A1C3 (Hexadecimal format) |
| **Returns:** | 1089976 (Decimal format) |
| **Returns:** | 1090.003 (Float format) |

### 5.5.3 MODE

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:MEA \| :MEASURE}{:SET \| :SETTINGS}{:MOD \| :MODE}SP<numeric>CR | |
| **Description:** | This command sets the measurement mode. | |
| **Numeric:** | 0 to 2 (decimal ASCII) | |
| | **Value** | **Measurement Mode** |
| | 0 | Pulse |
| | 1 | Frequency 1030 |
| | 2 | Phase 1030 |
| **Default:** | Pulse | |
| **Example:** | :RGS:MEA:SET:MOD 0\r | |

### 5.5.4 PHASE REQUEST

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:MEA \| :MEASURE}{:PHASE?} CR |
| **Description:** | This command returns the phase of the selected pulse between Port 1 and the selected port. |
| **Return:** | Value is in ASCII data format specified in degrees.<br>In case of the Float data format, the value is returned with one decimal point. |
| **Example:** | :RGS:MEA:PHASE?\r |
| **Returns:** | 45.1 |

### 5.5.5 PORT

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:MEA \| :MEASURE}{:SET \| :SETTINGS}{:POR \| :PORT}SP<numeric>CR | |
| **Description:** | This command sets the receiver port to sample. | |
| **Numeric:** | 0 to 5 (decimal ASCII) | |
| | **Value** | **Channel** |
| | 0 | T1/B1 |
| | 1 | T2/B2 |
| | 2 | T3/B3 |
| | 3 | T4/B4 |
| | 4 | Chamber |
| | 5 | Combiner |
| **Default:** | 0 | |
| **Example:** | :RGS:MEA:SET:POR 0\r | |

### 5.5.6 PULSE

<table>
<tr><td>Command Syntax:</td><td colspan="2">{:RGS | :RGS2000NG}{:MEA | :MEASURE}{:SET | :SETTINGS}{:PUL | :PULSE}SP<value>CR</td></tr>
<tr><td>Description:</td><td colspan="2">This command sets the measurement routine to sample the selected pulse.</td></tr>
<tr><td></td><td>Value</td><td>Pulse</td></tr>
<tr><td></td><td>0|F1</td><td>F1 ATCRBS Reply</td></tr>
<tr><td></td><td>1|C1</td><td>C1 ATCRBS Reply</td></tr>
<tr><td></td><td>2|A1</td><td>A1 ATCRBS Reply</td></tr>
<tr><td></td><td>3|C2</td><td>C2 ATCRBS Reply</td></tr>
<tr><td></td><td>4|A2</td><td>A2 ATCRBS Reply</td></tr>
<tr><td></td><td>5|C4</td><td>C4 ATCRBS Reply</td></tr>
<tr><td></td><td>6|A4</td><td>A4 ATCRBS Reply</td></tr>
<tr><td></td><td>7|B1</td><td>B1 ATCRBS Reply</td></tr>
<tr><td></td><td>8|D1</td><td>D1 ATCRBS Reply</td></tr>
<tr><td></td><td>9|B2</td><td>B2 ATCRBS Reply</td></tr>
<tr><td></td><td>10|D2</td><td>D2 ATCRBS Reply</td></tr>
<tr><td></td><td>11|B4</td><td>B4 ATCRBS Reply</td></tr>
<tr><td></td><td>12|D4</td><td>D4 ATCRBS Reply</td></tr>
<tr><td></td><td>13|F2</td><td>F2 ATCRBS Reply</td></tr>
<tr><td></td><td>14|P1MSR</td><td>P1 Mode S Reply</td></tr>
<tr><td></td><td>15|P2MSR</td><td>P2 Mode S Reply</td></tr>
<tr><td></td><td>16|P3MSR</td><td>P3 Mode S Reply</td></tr>
<tr><td></td><td>17|P4MSR</td><td>P4 Mode S Reply</td></tr>
<tr><td></td><td>18|S1MCI</td><td>S1 ATCRBS Interrogation</td></tr>
<tr><td></td><td>19|P1MCI</td><td>P1 ATCRBS Interrogation</td></tr>
<tr><td></td><td>20|P2MCI</td><td>P2 ATCRBS Interrogation</td></tr>
<tr><td></td><td>21|P3MCI</td><td>P3 ATCRBS Interrogation</td></tr>
<tr><td></td><td>22|P4MCI</td><td>P4 ATCRBS Interrogation</td></tr>
<tr><td></td><td>23|P1MSI</td><td>P1 Mode S Interrogation</td></tr>
<tr><td></td><td>24|P2MSI</td><td>P2 Mode S Interrogation</td></tr>
<tr><td></td><td>25|P6MSIR</td><td>P6 Start Interrogation</td></tr>
<tr><td></td><td>26|P6MSIF</td><td>P6 End Interrogation</td></tr>
<tr><td></td><td>27|P6MSI</td><td>P6 Mode S Interrogation</td></tr>
<tr><td></td><td>28|P6SPR</td><td>P6 SPR</td></tr>
<tr><td></td><td>29|MCSPI</td><td>SPI ATCRBS Reply</td></tr>
<tr><td></td><td>30|DFDATA</td><td>DF Frame Data</td></tr>
<tr><td>Default:</td><td>Scenario Type</td><td>DF Frame Data</td></tr>
<tr><td></td><td>XPDR</td><td>TCAS</td></tr>
<tr><td></td><td>0|F1</td><td>19|P1MCI</td></tr>
<tr><td>Example:</td><td colspan="2">:RGS:MEA:SET:PUL 0\r</td></tr>
</table>

### 5.5.7 PULSE FALLTIME REQUEST

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:MEA \| :MEASURE}{:PUL \| :PULSE}{:FALL?} CR |
| **Description:** | This command returns the fall time of the selected pulse. |
| **Return:** | Value is in ASCII data format specified in ns.<br>In case of the Float data format, the value is returned without fractional part. |
| **Example:** | :RGS:MEA:PUL:FALL?\r |
| **Returns:** | 110 |

### 5.5.8 PULSE RISETIME REQUEST

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:MEA \| :MEASURE}{:PUL \| :PULSE}{:RISE?} CR |
| **Description:** | This command returns the rise time of the selected pulse. |
| **Return:** | Value is in ASCII data format specified in ns.<br>In case of the Float data format, the value is returned without fractional part. |
| **Example:** | :RGS:MEA:PUL:RISE?\r |
| **Returns:** | 88 |

### 5.5.9 PULSE POSITION REQUEST

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:MEA \| :MEASURE}{:PUL \| :PULSE}{:POS? \| :POSITION?} CR |
| **Description:** | This command returns the position of the selected pulse. |
| **Return:** | Value is in ASCII data format specified in ns.<br>In case of the Float data format, the value is returned without fractional part. |

### 5.5.10 PULSE POWER REQUEST

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:MEA \| :MEASURE}{:PUL \| :PULSE}{:POWER?} CR |
| **Description:** | This command returns the power of the selected pulse. |
| **Return:** | Value is in ASCII data format specified in dBm.<br>In case of the Float data format, the value is returned with two decimal points. |

### 5.5.11 PULSE WIDTH REQUEST

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:MEA \| :MEASURE}{:PUL \| :PULSE}{:WID? \| :WIDTH?} CR |
| **Description:** | This command returns the pulse width of the selected pulse. |
| **Return:** | Value is in ASCII data format specified in ns.<br>In case of the Float data format, the value is returned without fractional part. |
| **Example:** | :RGS:MEA:PUL:WID?\r |
| **Returns:** | 452 |

### 5.5.12 SPR

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:MEA \| :MEASURE}{: SET \| : SETTINGS}{: SPR}SP<numeric>CR |
| **Description:** | This command sets the measurement routine to sample the selected SPR. |
| **Numeric:** | 0 to 112 (decimal ASCII) |
| | 0 is the Sync Phase Reversal of the P6 pulse. |
| | 1 is not used. |
| | 2 is the first Bit of the interrogation. |
| **Default:** | 0 |
| **Example:** | :RGS:MEA:SET:SPR 2\r |

### 5.5.13 TRIGGER PARAMETERS

#### 5.5.13.1 Antenna

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:MEA \| :MEASURE}{:SET \| :SETTINGS}{:TRIGGER \| :TRIG}{:ANT \| :ANTENNA}SP{TOP \| BOTTOM}CR |
| **Description:** | This command sets the measurement routine to sample either the top or bottom antenna. |
| **Default:** | Top |
| **Example:** | :RGS:MEA:SET:TRIG:ANT TOP\r |

#### 5.5.13.2 ATE Line Mode S Address

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:MEA \| :MEASURE}{:SET \| :SETTINGS}{:TRIGGER \| :TRIG}{:MSADDR}SP<numeric>CR |
| **Description:** | This command sets the ATE line Mode S address. |
| **Numeric:** | 0 to FFFFFF (hexadecimal ASCII) |
| **Example:** | :RGS:MEA:SET:TRIG:MSADDR 000002\r |

#### 5.5.13.3 ATE Line Quadrant

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:MEA \| :MEASURE}{:SET \| :SETTINGS}{:TRIGGER \| :TRIG}{:QUAD}SP{FORWARD \| RIGHT \| LEFT \| AFTER}CR |
| **Description:** | This command sets the reply ATE line Mode A/C quadrant. |
| **Default:** | Forward |
| **Example:** | :RGS:MEA:SET:TRIG:QUAD FORWARD\r |

### 5.5.13.4 ATE Line Whisper/Shout Level

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:MEA | :MEASURE}{:SET | :SETTINGS}{:TRIGGER | :TRIG}{:WS}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the ATE line Whisper\Shout level to trigger on.</td></tr>
<tr><td>Numeric:</td><td>0 to 255 (decimal ASCII)</td></tr>
<tr><td>Default:</td><td>0</td></tr>
<tr><td>Example:</td><td>:RGS:MEA:SET:TRIG:WS 50\r</td></tr>
</table>

### 5.5.13.5 DBM Level

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:MEA | :MEASURE}{:SET | :SETTINGS}{:TRIGGER | :TRIG}{:LDBM}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the trigger level in dBm if trigger source is set to log video.</td></tr>
<tr><td>Numeric:</td><td>15 to 60 dBm (decimal ASCII)</td></tr>
<tr><td>Example:</td><td>:RGS:MEA:SET:TRIG:LDBM 22\r</td></tr>
</table>

### 5.5.13.6 Edge

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:MEA | :MEASURE}{:SET | :SETTINGS}{:TRIGGER | :TRIG}{:EDGE}SP{+ | -}CR</td></tr>
<tr><td>Description:</td><td>This command sets the trigger edge to + or –.</td></tr>
<tr><td>Default:</td><td>+</td></tr>
<tr><td>Example:</td><td>:RGS:MEA:SET:TRIG:EDGE +\r</td></tr>
</table>

### 5.5.13.7 Level

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:MEA | :MEASURE}{:SET | :SETTINGS}{:TRIGGER | :TRIG}{:LEV | :LEVEL}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the trigger level in analog to digital converter counts, if trigger source is set to log video.</td></tr>
<tr><td>Numeric:</td><td>0 to 1023 (decimal ASCII)</td></tr>
<tr><td>Example:</td><td>:RGS:MEA:SET:TRIG:LEV 581\r</td></tr>
</table>

### 5.5.13.8 Mode

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:MEA | :MEASURE}{:SET | :SETTINGS}{:TRIGGER | :TRIG}{:MODE}SP{NORMAL | SINGLE}CR</td></tr>
<tr><td>Description:</td><td>This command sets the trigger mode to normal or single.</td></tr>
<tr><td>Default:</td><td>Single</td></tr>
<tr><td>Example:</td><td>:RGS:MEA:SET:TRIG:MODE NORMAL\r</td></tr>
</table>

#### 5.5.13.9 Source

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:MEA \| :MEASURE}{:SET \| :SETTINGS}{:TRIGGER \| :TRIG}{:SOU \| :SOURCE}SP<numeric>CR | |
| **Description:** | This command sets the trigger source. | |
| **Numeric:** | 0 to 8 (decimal ASCII) | |
| | **Value** | **Trigger Source** |
| | 0 | Log Video |
| | 1 | Mode S ATE Line |
| | 2 | Mode A ATE Line |
| | 3 | Mode C ATE Line |
| **Default:** | 3 | |
| **Example:** | :RGS:MEA:SET:TRIG:SOU 0\r | |

## 5.6 OWN AIRCRAFT COMMANDS

This set of commands allow the user to set the own aircraft information remotely.

### 5.6.1 ALTITUDE

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:OWN}{:ALT \| :ALTITUDE}SP<numeric>CR |
| **Description:** | This command sets the own aircraft (TCAS under test) altitude value. |
| **Numeric:** | -1000 to 126700 feet (decimal ASCII) |
| **Default:** | Last altitude before power down. |
| **Example:** | :RGS:OWN:ALT 1000\r |
| **NOTE:** | This command is valid only when the source of the own aircraft parameters is defined as “MANUAL.” |

### 5.6.2 HEADING

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:OWN}{:HEAD \| :HEADING}SP<numeric>CR |
| **Description:** | This command sets the own aircraft (TCAS under test) heading value. |
| **Numeric:** | -180 to 180 degrees (decimal ASCII)<br>0 to 360 degrees (decimal ASCII) |
| **Default:** | Last heading before power down. |
| **Example:** | :RGS:OWN:HEAD 0.001\r |
| **NOTE:** | This command is valid only when the source of the own aircraft parameters is defined as “MANUAL.” |

### 5.6.3 LATITUDE

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:OWN}{:LAT \| :LATITUDE}SP<numeric>CR |
| **Description:** | This command sets the own aircraft (TCAS under test) latitude value. |
| **Numeric:** | -90 to 90 degrees (double ASCII) |
| **Default:** | Last latitude before power down. |
| **Example:** | :RGS:OWN:LAT 25.83331\r |
| **NOTE:** | This command is valid only when the source of the own aircraft parameters is defined as “MANUAL.” |

### 5.6.4 LONGITUDE

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:OWN}{:LONG \| :LONGITUDE}SP<numeric>CR |
| **Description:** | This command sets the own aircraft (TCAS under test) longitude value. |
| **Numeric:** | -180 to 180 degrees (double ASCII) |
| **Default:** | Last longitude before power down. |
| **Example:** | :RGS:OWN:LONG -80.333331\r |
| **NOTE:** | This command is valid only when the source of the own aircraft parameters is defined as “MANUAL.” |

### 5.6.5 MODE S ADDRESS

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:OWN}{:MSADDR}SP<numeric>CR |
| **Description:** | This command sets the own aircraft Mode S address. |
| **Numeric:** | 0 to FFFFFF (hexadecimal ASCII) |
| **Default:** | Last Mode S Address before power down. |
| **Example:** | :RGS:OWN:MSADDR 000001\r |
| **NOTE:** | This command is valid for any source of the own aircraft parameters defined. |

### 5.6.6 REPORT

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:OWN}{:REP \| :REPORT}SP<latitude>,<longitude>,<altitude>,<heading>CR |
| **Description:** | This command sets the own aircraft (TCAS under test) latitude, longitude, altitude and heading values. |
| **Numeric:** | Same numeric values as the individual commands. |
| **Example:** | :RGS:OWN:REPORT 25.9333,-80.9111,10000,90.0\r |
| **NOTE:** | This command is valid only when the source of the own aircraft parameters is defined as “EXTERNAL.” |

## 5.7 RECEIVER COMMANDS

This set of commands allows the user to set the Unit to perform various receiver functions (select received messages, enable/disable data logging, read logged data, ...).

### 5.7.1 LOG PARAMETERS

#### 5.7.1.1 Clear

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:RCV \| :RCVR}:LOG{:CLE \| :CLEAR} CR |
| **Description:** | This command clears the log buffer of received messages. |
| **Example:** | :RGS:RCV:LOG:CLE\r |

#### 5.7.1.2 Count Request

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:RCV \| :RCVR}{:CO \| :COUNT}?CR |
| **Description:** | This command returns the count of messages available to read from the Unit receiver log. |
| **Return Value:** | Decimal value in ASCII |
| **Example:** | :RGS:RCV:CO?\r |
| **Returns:** | 7 |

#### 5.7.1.3 Message Type Count Request

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:RCV \| :RCVR}{:MTCO \| :MTCOUNT}?CR |
| **Description:** | This command returns the amount per type of messages available to read from the Unit receiver log. |
| **Return Value:** | Decimal value in ASCII separated by comma in the following order: UUT DF messages count, UUT ATCRBS Reply messages count, UUT UF messages count, UUT ATCRBS Interrogation messages count, RGS DF messages count, RGS ATCRBS Reply messages count, RGS UF messages count, RGS ATCRBS Interrogation count.<br>If the Unit is not ready to return an answer, “#” is returned separated by comma. |
| **Example:** | :RGS:RCV:MTCO?\r |
| **Returns:** | 0,1439,0,0,0,0,0,0,2878,0 |

### 5.7.1.4 Read

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:RCV \| :RCVR}{:LOG:DL?}CR | |
| **Description:** | If the Unit Receiver Log is empty, the response is EMPTY (ASCII). If data is available, the Unit responds with 25 Bytes in hexadecimal format (50 ASCII bytes). The following is the description of each byte. | |
| **Byte 1: Type of Message** | | |
| | **Message** | Code |
| | Mode S Reply | 1 |
| | ATCRBS Reply | 2 |
| | Mode S Interrogation | 3 |
| | ATCRBS Interrogation | 4 |
| | RGS Mode S Reply | 5 |
| | RGS ATCRBS Reply | 6 |
| | RGS Mode S Interrogation | 7 |
| | RGS ATCRBS Interrogation | 8 |
| **Byte2 to 15: Data** | | |
| | **Mode S Short Replies (DF0 to DF15):** | |
| | Byte 2 to 8: All 0’s | |
| | Byte 9 to 15: Data (Byte 9, Bit 7 (MSB); Hexadecimal) | |
| | **Mode S Long Replies (DF16 to DF24):** | |
| | Byte 2 to 15: Data (Byte2, Bit 7 (MSB); Hexadecimal) | |
| | **Mode S Short Interrogations (UF0 to UF15):** | |
| | Byte 2 to 8: All 0’s | |
| | Byte 9 to 15: Data (Byte 9, Bit 7 (MSB); Hexadecimal) | |
| | **Mode S Long Interrogations (UF16 to UF24):** | |
| | Byte 2 to 15: Data (Byte2, Bit 7 (MSB); Hexadecimal) | |
| | **ATCRBS Replies:** | |
| | SW Ver. 17.08.0901 and below: | |
| | Byte 2: High Nibble Bit7-4 (Zero); Low Nibble Bit 3-0 (C1 A1 C2 A2) | |
| | Byte 3: (C4 A4 B1 D1 B2 D2 B4 D4) | |
| | Byte 4 to 15: All 0’s | |
| | SW Ver. 17.10.1003 and above: | |
| | Byte 2: High Nibble: Generator; Low Nibble (Zero) | |
| | Byte 3: High Nibble bit 7-6 (Zero); SPI bit 5; X bit 4; Low Nibble Bit 3-0 (C1 A1 C2 A2) | |
| | Byte 4: (C4 A4 B1 D1 B2 D2 B4 D4) | |
| | Byte 5 – 15: All 0’s | |
| | **ATCRBS Interrogations:** | |
| | Byte 2: High Nibble Bit 7-4 (Zero); Low Nibble Bit 3-0 (Mode) Mode: | |
| | **Interrogation Type** | **Mode Code** |

| | | |
|---|---|---|
| | Mode C | 1 |
| | Mode C Only All Call | 2 |
| | Mode C/Mode S All Call | 3 |
| | Mode C with S1 | 4 |
| | Mode C Only All Call with S1 | 5 |
| | Mode C/Mode S All Call with S1 | 6 |
| | Mode A | 7 |
| | Mode A Only All Call | 8 |
| | Mode A/Mode S All Call | 9 |
| | Mode A with S1 | A |
| | Mode A Only All Call with S1 | B |
| | Mode A/Mode S All Call with S1 | C |
| | Byte 3: UUT Whisper/Shout Level; RGS Zero | |
| | Byte 4: UUT High Nibble Bit 7-4 (Zero), Low Nibble Bit 3-0 (Quadrant); RGS Zero | |
| | **Quadrant** | **Code** |
| | Forward | 0 |
| | Right | 1 |
| | After | 2 |
| | Left | 3 |
| | Omni | 4 |
| | Byte 5 to 15: All 0’s | |
| **Byte 16: Location Status** | | |
| **Mode S Replies/Interrogations:** | | |
| | Bit 7 (MSB): UUT: Top Receiver = 1, Bottom Receiver = 0; RGS: Always 0 | |
| | Bit 6 to 4: UUT: Always 0; RGS: Transmitter | |
| | **Transmitter** | Code |
| | Generator A | 0 |
| | Generator B | 1 |
| | Generator C | 2 |
| | Generator D | 3 |
| | Generator E | 4 |
| | Generator F | 5 |
| | Bit 3-0: Always 0 | |

| | | |
|---|---|---|
| | **ATCRBS Replies/ Interrogations:** | |
| | Bit 7 (MSB): UUT: Top Receiver = 1, Bottom Receiver = 0; RGS: Always 0 | |
| | Bit 6 to 4: UUT: Always 0; RGS: Transmitter | |
| | **Transmitter** | Code |
| | Generator A | 0 |
| | Generator B | 1 |
| | Generator C | 2 |
| | Generator D | 3 |
| | Generator E | 4 |
| | Generator F | 5 |
| | Bit 3-0: Always 0 | |
| | **Byte 17 to 19: Address** | |
| | **Mode S Replies/Interrogations:** | |
| | Mode S Address (Byte 17, Bit 7 to MSB) | |
| | **ATCRBS Replies/Interrogations:** | |
| | All 0's | |
| | **Byte 20 to 25: Time Stamp** | |
| | 6 bytes represent time from start of scenario. Bit resolution is equivalent to 25 ns. | |
| **Example:** | :RGS:RCV:LOG:DL?\r | |
| **Returns:** | 070000000000000020000000E6025D0555555501DF128460FB | |

### 5.7.1.5 Record

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:RCV \| :RCVR}{:REC \| :RECORD}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the Unit from recording (logging) the messages being received by the receivers that are enabled to capture. |
| **Default:** | Off |
| **Example:** | :RGS:RCV:REC ON\r |

### 5.7.2 MASK

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:RCV \| :RCVR}{:MA \| :MASK}SP<numeric>CR | |
| **Description:** | This command enables/disables the capture of messages.<br>A "1" for the receiver associated Bit means that the receiver is enabled. | |
| **Numeric:** | FFF (hexadecimal ASCII Byte) | |
| | **Bit** | **Receiver** |
| | 0x01 | UUT DF Messages |
| | 0x02 | UUT ATCRBS Replies |
| | 0x04 | UUT UF Messages |
| | 0x08 | UUT ATCRBS Interrogations |
| | 0x10 | Unit DF messages |
| | 0x20 | Unit ATCRBS Replies |
| | 0x40 | Unit UF Messages |
| | 0x80 | Unit ATCRBS Interrogations |
| **Default:** | No mask (All receivers off) | |
| **Example:** | :RGS:RCV:MA FF\r | |

### 5.7.3 STATUS REQUEST

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:RCV \| :RCVR}{:ST \| :STATUS}?CR | |
| **Description:** | This command returns a byte with the status of all eight receivers within the Unit (receivers in this context means any of the 8 defined functional "receivers" below not physical RF Hardware receivers).<br>A "1" for the receiver associated Bit means that the receiver is receiving messages. | |
| **Return Value:** | FF (hexadecimal ASCII Byte) | |
| | **Bit** | **Receiver** |
| | 0x01 | UUT DF Messages |
| | 0x02 | UUT ATCRBS Replies |
| | 0x04 | UUT UF Messages |
| | 0x08 | UUT ATCRBS Interrogations |
| | 0x10 | Unit DF messages |
| | 0x20 | Unit ATCRBS Replies |
| | 0x40 | Unit UF Messages |
| | 0x80 | Unit ATCRBS Interrogations |
| **Example:** | :RGS:RCV:ST?\r | |
| **Returns:** | 51 | |

### 5.7.4 UTC TIME

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:RCV \| :RCVR}{:UTC}SP{ON[,{PC \| GPS \| 429}] \| OFF}CR |
| **Description:** | This command enables or disables the UTC time format for the received messages timestamp. When the UTC time is enabled, the UTC source definition is optional. By default, the UTC source is from the PC time. The GPS source is hardware dependent. |
| **Default:** | OFF |
| **Example:** | :RGS:RCV:UTC ON,PC\r |
| | :RGS:RCV:UTC OFF\r |

## 5.8 RTCA/DO-260 TEST COMMANDS

These commands allow the definition of different RTCA/DO-260 tests. The Unit has implemented the following type of tests: Normal Test, Bit Failures Special Test, Altered Preamble Special Test, Overlapping Pulse Special Test, Confidence Test and Preamble Validation Test.

The Normal Test is a test that allows the definition of one type of message (Mode S or Mode A/Mode C or none) for each generator available for the test. The generator available for the test depends on the power mode (Low Power or High Power). In Low Power Mode, all generators are available. In High Power Mode, only generators GENA, GENC and GENE are available.

For the special tests (Bit Failures, Altered Preamble, Overlapping Pulse, Confidence Test and Preamble Validation) only two generators are available (GENA and GENC). The generator GENA is used to define the reference (Mode S message) and generator GENC is used to define the special test.

### 5.8.1 GENERATOR PARAMETERS

#### 5.8.1.1 Antenna

| | |
|---|---|
| **Command Syntax:** | Normal Test:<br>{:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:NORMAL }{:GENS}{:GENA \| :GENB \| :GENC \| :GEND \| :GENE \| :GENF}{:PATH \| :PA}SP{TOP \| BOTTOM}CR |
| | Special Test:<br>{:RGS \| :RGS2000NG}{:DO260}{:TYPE}{ :OVERLAPPINGPULSE \| :OVERLAP \| :ALTEREDPREAMBLE \| :ALT \| :BITFAILURES \| :BITF \| :PREAMBLEVAL \| :PREA}{:GENS}{:GENA \| :GENC }{:PATH \| :PA}SP{TOP \| BOTTOM}CR |
| **Description:** | This command sets the selected generator path to either top or bottom antenna. |
| **Default:** | Top |
| **Example (Normal Test):** | :RGS:DO260:TYPE:NORMAL:GENS:GENB:PA BOTTOM\r |
| **Example (Special Test):** | :RGS:DO260:TYPE:BITFAILURES:GENS:GENA:PA BOTTOM\r |

#### 5.8.1.2 ATCRBS Data

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:NORMAL} {:GENS}{:GENA \| :GENB \| :GENC \| :GEND \| :GENE \| :GENF} {:MODEC} {:DATA}SP<numeric>CR |
| **Description:** | This command defines the Mode A /Mode C Code to transmit using the selected generator. |
| **Numeric:** | 0 to 7777 (octal ASCII) |
| **Default:** | 0000 (Mode A Code) |
| **Example:** | :RGS:DO260:TYPE:NORMAL:GENS:GENA:MODEC:DATA 1234\r |
| **NOTE:** | This command is valid only for the NORMAL test type. |

#### 5.8.1.3 ATCRBS Data Random ON/OFF

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:NORMAL} {:GENS}{:GENA \| :GENB \| :GENC \| :GEND \| :GENE \| :GENF} {:MODEC}{:RANDOM}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the random generation of Mode C Pulse to transmit using the selected generator. |
| **Default:** | Off (Random generation disabled) |
| **Example:** | :RGS:DO260:TYPE:NORMAL:GENS:GENA:MODEC:RANDOM ON\r |
| **NOTE:** | This command is valid only for the NORMAL test type. |

#### 5.8.1.4 ATCRBS Pulse Parameters

##### 5.8.1.4.1 Delta Pulse Position

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:NORMAL}{:PULSE}{:ATCRBS:CH:}{ 1 \| 2 \| 3 \| 4 \| 5 \| 6}{:PF1 \| :PC1 \| :PA1 \| :PC2 \| :PA2 \| :PC4 \| :PA4 \| :PB1 \| :PD1 \| :PB2 \| :PD2 \| :PB4 \| :PD4 \| :PF2}{:DPOS}SP<numeric>CR |
| **Description:** | This command sets the delta position of the selected ATCRBS pulse on the selected generator. |
| **Numeric:** | -1000 to 1000 ns in 25 ns steps (decimal ASCII).<br>Except for F1, the range is from 0 to 100. |
| **Default:** | 0 |
| **Example:** | :RGS:DO260:TYPE:NORMAL:PULSE:ATCRBS:CH:2:PF1:DPOS 3\r |

##### 5.8.1.4.2 Delta Pulse Width

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:NORMAL}{:PULSE}{:ATCRBS:CH:}{1 \| 2 \| 3 \| 4 \| 5 \| 6}{:PF1 \| :PC1 \| :PA1 \| :PC2 \| :PA2 \| :PC4 \| :PA4 \| :PB1 \| :PD1 \| :PB2 \| :PD2 \| :PB4 \| :PD4 \| :PF2}{:DWIDTH}SP<numeric>CR |
| **Description:** | This command sets the delta width of the selected ATCRBS pulse on the selected generator. |
| **Numeric:** | -400 to 400 ns in 25 ns steps (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:DO260:TYPE:NORMAL:PULSE:ATCRBS:CH:2:PF1:DWIDTH 200\r |

##### 5.8.1.4.3 Pulse Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:NORMAL}{:PULSE}{:ATCRBS:CH:}{ 1 \| 2 \| 3 \| 4 \| 5 \| 6}{:PF1 \| :PC1 \| :PA1 \| :PC2 \| :PA2 \| :PC4 \| :PA4 \| :PB1 \| :PD1 \| :PB2 \| :PD2 \| :PB4 \| :PD4 \| :PF2}{:ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables (not visible) the selected ATCRBS pulse. |
| **Default:** | On |
| **Example:** | :RGS:DO260:TYPE:NORMAL:PULSE:ATCRBS:CH:3:PF1:ENABLE ON\r |

### 5.8.1.5 Delay

<table>
<tr><td>Command Syntax:</td><td>Normal Test:<br>{:RGS | :RGS2000NG}{:DO260}{:TYPE}{:NORMAL }{:GENS}{ :GENA | :GENB | :GENC | :GEND | :GENE | :GENF}{:DELAY}SP<numeric>CR</td></tr>
<tr><td></td><td>Special Test:<br>{:RGS | :RGS2000NG}{:DO260}{:TYPE}{ :OVERLAPPINGPULSE | :OVERLAP | :ALTEREDPREAMBLE | :ALT | :BITFAILURES | :BITF | :PREAMBLEVAL | :PREA }{:GENS}{:GENA | :GENC}{:DELAY}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the selected generator to relative delay in ns.</td></tr>
<tr><td>Numeric:</td><td>0 to 120000 ns (DECIMAL ASCII)-120000 to 120000 ns only valid for type “NORMAL” and the trigger Mode Selected “WALK.”</td></tr>
<tr><td>Default:</td><td>0 ns<br>(for the generator trigger source, the relative delay is 0 ns).</td></tr>
<tr><td>Example (Normal Test):</td><td>:RGS:DO260:TYPE:NORMAL:GENS:GENB:DELAY 10\r</td></tr>
<tr><td>Example (Special Test):</td><td>:RGS:DO260:TYPE:OVERLAP:GENS:GENC:DELAY 100\r</td></tr>
</table>

### 5.8.1.6 Enable

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:DO260}{:TYPE}{:NORMAL } {:GENS}{:GENA | :GENB | :GENC | :GEND | :GENE | :GENF}{:SIGNAL | :SIG}SP{ON | OFF}CR</td></tr>
<tr><td>Description:</td><td>This command enables or disables the selected generator.</td></tr>
<tr><td>Default:</td><td>Off</td></tr>
<tr><td>Example:</td><td>:RGS:DO260:TYPE:NORMAL:GENS:GENA:SIG ON\r</td></tr>
<tr><td>NOTE:</td><td>By default, all generators are disabled.</td></tr>
</table>

### 5.8.1.7 Mode S Data

<table>
<tr><td>Command Syntax:</td><td>Normal Test:<br>{:RGS | :RGS2000NG}{:DO260}{:TYPE}{:NORMAL }{:GENS}{ :GENA | :GENB | :GENC | :GEND | :GENE | :GENF}{:DELAY}SP<numeric>CR</td></tr>
<tr><td></td><td>Special Test:<br>{:RGS | :RGS2000NG}{:DO260}{:TYPE}{ :OVERLAPPINGPULSE | :OVERLAP | :ALTEREDPREAMBLE | :ALT | :BITFAILURES | :BITF | :PREAMBLEVAL | :PREA }{:GENS}{:GENA | :GENC}{:DELAY}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command defines the Mode S message to transmit through the selected generator. For long Mode S, the <Mode S hex data> contains twenty eight hex figures. For short Mode S, the <Mode S hex data> contains fourteen hex figures.<br>The last six hex figures are used to define the Mode S Address.</td></tr>
<tr><td>Default:</td><td>DF0<br>Mode S data is 00000000000001.</td></tr>
<tr><td>Example:</td><td>:RGS:DO260:TYPE:NORMAL:GENS:GENA:MODES:DATA 8800000148000000000000000001\r</td></tr>
</table>

#### 5.8.1.8 Mode S Pulse Parameters

##### 5.8.1.8.1 Preamble Data Delta Pulse Position

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:NORMAL}{:PULSE}{:MODES:CH:}{ 1 \| 2 \| 3 \| 4 \| 5 \| 6}{:P2 \| :P3 \| :P4 }{:DPOS}SP<numeric>CR |
| **Description:** | This command sets the delta position of the selected Mode S pulse on the selected generator. |
| **Numeric:** | -1000 to 1000 ns in 25 ns steps (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:DO260:TYPE:NORMAL:PULSE:MODES:CH:1:P2:DPOS 25\r |

##### 5.8.1.8.2 Preamble Delta Pulse Width

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:NORMAL}{:PULSE}{:MODES:CH:}{ 1 \| 2 \| 3 \| 4 \| 5 \| 6}{:P1 \| :P2 \| :P3 \| :P4 }{:DWIDTH}SP<numeric>CR |
| **Description:** | This command sets the delta width of the selected Mode S pulse on the selected generator. |
| **Numeric:** | -400 to 400 ns in 25 ns steps (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:DO260:TYPE:NORMAL:PULSE:MODES:CH:1:P2:DWIDTH 50\r |

##### 5.8.1.8.3 Preamble Pulse Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:NORMAL}{:PULSE}{:MODES:CH:}{ 1 \| 2 \| 3 \| 4 \| 5 \| 6}{:P1 \| :P2 \| :P3 \| :P4 }{:ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables (not visible) the selected Mode S pulse. |
| **Default:** | On |
| **Example:** | :RGS:DO260:TYPE:NORMAL:PULSE:MODES:CH:1:P1:ENABLE ON\r |

#### 5.8.1.9 Phase

| | |
|---|---|
| **Command Syntax:** | Normal Test:<br>{:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:NORMAL } {:GENS}{:GENA \| :GENB \| :GENC \| :GEND \| :GENE \| :GENF} {:PHASE \| :PHA}SP<numeric>CR |
| | Special Test:<br>{:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:OVERLAPPINGPULSE \| :OVERLAP \| :ALTEREDPREAMBLE \| :ALT \| :BITFAILURES \| :BITF \| :PREAMBLEVAL \| :PREA }{:GENS}{:GENA \| :GENC } {:PHASE \| :PHA}SP<numeric>CR |
| **Description:** | This command sets the selected generator output phase according to the selected OEM. |
| **Numeric:** | 0 to 359 degrees (DECIMAL ASCII). |
| **Example:** | ::DO260:OVERLAPPINGPULSE:GENS:GENA:PHASE 45 |
| **Default:** | 0 |
| **Example (Normal Test):** | :RGS:DO260:TYPE:NORMAL:GENS:GENA:PHA 55\r |
| **Example (Special Test):** | :RGS:DO260:TYPE:OVERLAP:GENS:GENC:PHA 45\r |

### 5.8.1.10 Power Level

<table>
<tr><td>Command Syntax:</td><td>Normal Test:<br>{:RGS | :RGS2000NG}{:DO260}{:TYPE}{:NORMAL } {:GENS}{:GENA | :GENB | :GENC | :GEND | :GENE | :GENF} {:POWER | :POW}SP<numeric>CR</td></tr>
<tr><td></td><td>Special Test:<br>{:RGS | :RGS2000NG}{:DO260}{:TYPE}{ :OVERLAPPINGPULSE | :OVERLAP | :ALTEREDPREAMBLE | :ALT | :BITFAILURES | :BITF | :PREAMBLEVAL | :PREA }{:GENS}{:GENA | :GENC } {:POWER | :POW}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the selected generator output power level.</td></tr>
<tr><td>Numeric:</td><td>-20 to -90 dBm (decimal ASCII)</td></tr>
<tr><td>Default:</td><td>-20 dBm</td></tr>
<tr><td>Example (Normal Test):</td><td>:RGS:DO260:TYPE:NORMAL:GENS:GENA:POW -40\r</td></tr>
<tr><td>Example (Special Test):</td><td>:RGS:DO260:TYPE:ALT:GENS:GENC:POW -30\r</td></tr>
</table>

### 5.8.1.11 Random Mode S Data ON/OFF

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:DO260}{:TYPE}{:NORMAL } {:GENS}{:GENA | :GENB | :GENC | :GEND | :GENE | :GENF } {:MODES} {:RANDOM}SP{ON | OFF}CR</td></tr>
<tr><td>Description:</td><td>This command enables or disables the random generation of Mode S Pulse to transmit using the selected generator.</td></tr>
<tr><td>Default:</td><td>Off</td></tr>
<tr><td>Example:</td><td>:RGS:DO260:TYPE:NORMAL:GENS:GENA:MODES:RANDOM ON\r</td></tr>
</table>

### 5.8.1.12 Random Starting Position ON/OFF

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:DO260}{:TYPE}{:NORMAL } {:GENS}{:GENA | :GENB | :GENC | :GEND | :GENE | :GENF } {:RSPOS}SP{ON | OFF}CR</td></tr>
<tr><td>Description:</td><td>This command enables or disables the random starting position generation of the pulse to transmit using the selected generator.</td></tr>
<tr><td>Default:</td><td>On</td></tr>
<tr><td></td><td>By default, when the trigger mode is set to random, the random starting position is enabled (ON).<br>For the generator trigger source, the random starting position is disabled.<br>If the random starting position is disabled with trigger Mode Set to random, then the starting position is the trigger source position plus the delay value for that specific generator.</td></tr>
<tr><td>Example:</td><td>:RGS:DO260:TYPE:NORMAL:GENS:GENA:RSPOS OFF\r</td></tr>
</table>

#### 5.8.1.13 Walk ON/OFF

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:NORMAL } {:GENS}{:GENA \| :GENB \| :GENC \| :GEND \| :GENE \| :GENF }{:WALK}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the walk status of the transmission using the selected generator. By default, the walk status is enabled when the trigger mode is set to walk. For the generator trigger source, the walk status is disabled. If walk is disabled, the transmission begins the delay value from the trigger source. If walk is enabled, the transmission initially begins at the delay value and then moves 50 ns every transmission until the end. |
| **Default:** | On |
| **Example:** | :RGS:DO260:TYPE:NORMAL:GENS:GENA:WALK OFF\r |

### 5.8.2 LOAD

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:LOAD}SP<filename>CR |
| **Description:** | This command loads a CSV scenario file (specified filename) from the internal storage area. |
| **Return:** | "*" is returned upon completion of loading the file. |
| **Example:** | :RGS:DO260:LOAD Test260.csv\r |

### 5.8.3 NUMBER OF TRANSMISSIONS

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TIMING}{:TRANSMISSIONS \| :TRANS}SP<numeric>CR |
| **Description:** | This command sets the number of transmissions. |
| **Numeric:** | {0, 20, 40, 60, 100, 200, 400, 600, 945, 1000, 2000, 4000, 6000, 10000} (decimal ASCII).<br>Setting to 0 means unlimited number of transmissions. |
| **Default:** | 0 (unlimited) |
| **Example:** | :RGS:DO260:TIMING:TRANS 20\r |

### 5.8.4 REPETITION INTERVAL

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TIMING}{:PERIOD \| :PER}SP<numeric>CR |
| **Description:** | This command sets the transmission interval in ms. |
| **Numeric:** | 10 to 2000 ms (decimal ASCII). |
| **Default:** | 10 ms (100 repetitions per second). |
| **Example:** | :RGS:DO260:TIMING:PER 10\r |

### 5.8.5 RESET

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:RESET}CR | |
| **Description:** | This command initializes the DO-260 test to the default values. | |
| | **Attribute** | **Value** |
| | Test Type | Normal |
| | Trigger Source | GENA |
| | Trigger Mode | Delay+ |
| | Period (ms) | 10 |
| | Number of Transmissions | 0 to Unlimited |
| | Signal (All Generators) | OFF |
| | Power (All Generators) | -20 dBm |
| | Phase (All Generators) | 0 deg |
| | Path (All Generators) | Top |
| | Delay (All Generators) | 0 ns |
| | Message Type | None |
| **Example:** | :RGS:DO260:RESET\r | |

### 5.8.6 SAVE

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:SAVE}SP<filename>CR |
| **Description:** | This command saves the current scenario into the internal storage area with the specified filename. |
| **Example:** | :RGS:DO260:SAVE Test260.csv\r |

### 5.8.7 SPECIAL TEST

The follow set of commands allow the user to setup some specific tests in RTCA DO-260 document. The special tests provided by the Unit are Altered Preamble, BIT Failure, Confidence Test, Overlapping, and Preamble Validation.

#### 5.8.7.1 Altered Preamble Parameters

##### 5.8.7.1.1 Pulse Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:ALTEREDPREAMBLE \| :ALT}{:PULSE}{:P1 \| :P2 \| :P3 \| :P4}{:ENABLE }SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the selected pulse. |
| **Default:** | On |
| **Example:** | :RGS:DO260:TYPE:ALT:PULSE:P1:ENABLE ON\r |

#### 5.8.7.1.2 Pulse Position

| | | | |
|---|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:ALTEREDPREAMBLE \| :ALT}{:PULSE}{:P1 \| :P2 \| :P3 \| :P4}{:POSITION \| :POS}SP<numeric>CR | | |
| **Description:** | This command sets the selected pulse delay. | | |
| **Numeric:** | | | |
| | **Pulse** | **Range** | **Default Value** |
| | P1 | [-5000, 675] | 0 |
| | P2 | [675, 1425] | 1000 |
| | P3 | [3075, 33925] | 3500 |
| | P4 | [4075, 4925] | 4500 |
| **Example:** | :RGS:DO260:TYPE:ALT:PULSE:P2:POSITION 1000\r | | |

#### 5.8.7.1.3 Pulse Power

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:ALTEREDPREAMBLE \| :ALT}{:PULSE}{:P1 \| :P2 \| :P3 \| :P4}{:REFERENCE \| :REF}SP{GENA \| GENC }CR |
| **Description:** | This command sets the selected pulse reference power. Only the generators GENA and GENC are available. By default, the reference power is GENA. |
| **Example:** | :DO260:TYPE:ALTEREDPREAMBLE:PULSE:P1:REFERENCE GENA |
| **Default:** | GENA |

#### 5.8.7.1.4 Pulse Width

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:ALTEREDPREAMBLE \| :ALT}{:PULSE}{:P1 \| :P2 \| :P3 \| :P4} {:WIDTH \| :WID}SP<numeric>CR |
| **Description:** | This command sets the selected pulse width. |
| **Numeric:** | 0 to 4500 ns (decimal ASCII) |
| **Default:** | 500 ns |
| **Example:** | :RGS:DO260:TYPE:ALT:PULSE:P1:WIDTH 200\r |

### 5.8.7.2 Bit Failure Parameters

#### 5.8.7.2.1 First Bad Chip

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:BITFAILURES \| :BITF }{:CHIPS}{:BFIRST}SP<numeric>CR |
| **Description:** | This command sets the first Bit of the bad chips pulse. |
| **Numeric:** | 0 for no bad chip<br>1 to 112 if the reference is a long Mode S<br>1 to 56 if the reference is a short Mode S (decimal ASCII). |
| **Default:** | 0 |
| **Example:** | :RGS:DO260:TYPE:BITF:CHIPS:BFIRST 33\r |

#### 5.8.7.2.2 First Energy Chip

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:BITFAILURES \| :BITF }{:CHIPS}{:FIRST}SP<numeric>CR |
| **Description:** | This command sets the first energy Bit of the bad chips pulse. |
| **Numeric:** | 0 for no energy Bit or 1 to 112 if the reference is a long Mode S or 1 to 56 if the reference is a short Mode S (decimal ASCII). |
| **Default:** | 0 |
| **Example:** | :RGS:DO260:TYPE:BITF:CHIPS:FIRST 33\r |

#### 5.8.7.2.3 Last Bad Chip

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:BITFAILURES \| :BITF }{:CHIPS}{:BLAST}SP<numeric>CR |
| **Description:** | This command sets the last Bit of the bad chips pulse. |
| **Numeric:** | 0 for no bad chip<br>1 to 112 if the reference is a long Mode S<br>1 to 56 if the reference is a short Mode S (decimal ASCII). |
| **Default:** | 0 |
| **Example:** | :RGS:DO260:TYPE:BITF:CHIPS:BLAST 39\r |

#### 5.8.7.2.4 Last Energy Chip

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:BITFAILURES \| :BITF }{:CHIPS}{:LAST}SP<numeric>CR |
| **Description:** | This command sets the last energy Bit of the bad chips pulse. |
| **Numeric:** | 0 for no energy Bit<br>1 to 112 if the reference is a long Mode S<br>1 to 56 if the reference is a short Mode S (decimal ASCII). |
| **Default:** | 0 |
| **Example:** | :RGS:DO260:TYPE:BITF:CHIPS:LAST 39\r |

### 5.8.7.3 Confidence Test Parameters

#### 5.8.7.3.1 Bad Chips

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:CONFIDENCE \| :CONF }{:BADP}{:CHIPS}SP<numeric>[,<numeric>[,<numeric>[,<numeric>[,<numeric>]]]]CR |
| **Description:** | This command sets the list of Bits with bad chip pulses. This command allows defining up to five different bad Bits. |
| **Numeric:** | 1 to 112 if the reference is a long Mode S<br>1 to 56 if the reference is a short Mode S (decimal ASCII). |
| **Default:** | None selected. |
| **Example:** | :RGS:DO260:TYPE:CONF:BADP:CHIPS 33\r |
| | :RGS:DO260:TYPE:CONF:BADP:CHIPS 2,5,14,24,33\r |

#### 5.8.7.3.2 Energy Chips

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:CONFIDENCE \| :CONF }{:ENERGY}{:CHIPS}SP<numeric>[,<numeric>[,<numeric>[,<numeric>[,<numeric>]]]]CR |
| **Description:** | This command sets the list of Bits with energy on both halves of the chip. This command allows defining up to five different energy Bits. |
| **Numeric:** | 1 to 112 if the reference is a long Mode S<br>1 to 56 if the reference is a short Mode S (decimal ASCII). |
| **Default:** | None selection. |
| **Example:** | :RGS:DO260:TYPE:CONF:ENERGY:CHIPS 3,7,15,25,44\r |

### 5.8.7.4 Overlapping Parameters

#### 5.8.7.4.1 Pulse Delay

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:OVERLAPPINGPULSE \| :OVERLAP}{:PULSE}{:DELAY}SP<numeric>CR |
| **Description:** | This command sets the pulse delay relative to P1. |
| **Numeric:** | -20000 to 2000 ns (decimal ASCII) |
| **Default:** | 0 ns |
| **Example:** | :RGS:DO260:TYPE:OVERLAP:PULSE:DELAY 2000\r |

#### 5.8.7.4.2 Pulse Width

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:OVERLAPPINGPULSE \| :OVERLAP}{:PULSE}{:WIDTH \| :WID}SP<numeric>CR |
| **Description:** | This command sets the overlapping pulse width. |
| **Numeric:** | 0 to 130000 ns (decimal ASCII). |
| **Default:** | 0 ns |
| **Example:** | :RGS:DO260:TYPE: OVERLAP:PULSE:WIDTH 4500\r |

### 5.8.7.5 Preamble Validation Test Parameters

#### 5.8.7.5.1 Delta Amplitude

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:PREAMBLEVAL \| :PREA }{:CHIPS}{:DAMP}SP<numeric>CR |
| **Description:** | This command sets the delta amplitude in dB for energy Bits of the pulse. |
| **Numeric:** | -10 to 10 dB (decimal ASCII) |
| **Default:** | 0 db |
| **Example:** | :RGS:DO260:TYPE:PREA:CHIPS:DAMP -6\r |

#### 5.8.7.5.2 First Energy Chip

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:PREAMBLEVAL \| :PREA }{:CHIPS}{:EFIRST}SP<numeric>CR |
| **Description:** | This command sets the first energy Bit of the message with amplitude. |
| **Numeric:** | 0 for no energy Bit<br>1 to 112 if the reference is a long Mode S<br>1 to 56 if the reference is a short Mode S (decimal ASCII). |
| **Default:** | 0 |
| **Example:** | :RGS:DO260:TYPE:PREA:CHIPS:EFIRST 1\r |

#### 5.8.7.5.3 First No Energy Chip

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:PREAMBLEVAL \| :PREA }{:CHIPS}{:NFIRST}SP<numeric>CR |
| **Description:** | This command sets the first no energy Bit of the message. |
| **Numeric:** | 0 for no energy chip<br>1 to 112 if the reference is a long Mode S<br>1 to 56 if the reference is a short Mode S (decimal ASCII). |
| **Default:** | 0 |
| **Example:** | :RGS:DO260:TYPE:PREA:CHIPS:NFIRST 1\r |

#### 5.8.7.5.4 Include Delta Amplitude (No Energy in Chips)

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:PREAMBLEVAL \| :PREA }{:CHIPS}{:IDAMP}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the delta amplitude for no energy Bits. |
| **Default:** | OFF |
| **Example:** | :RGS:DO260:TYPE:PREA:CHIPS:IDAMP ON\r |

#### 5.8.7.5.5 Last Energy Chip

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:PREAMBLEVAL \| :PREA }{:CHIPS}{:ELAST}SP<numeric>CR |
| **Description:** | This command sets the last energy Bit of the message with amplitude. |
| **Numeric:** | 0 for no energy Bit<br>1 to 112 if the reference is a long Mode S<br>1 to 56 if the reference is a short Mode S (decimal ASCII). |
| **Default:** | 0 |
| **Example:** | :RGS:DO260:TYPE:PREA:CHIPS:ELAST 5\r |

#### 5.8.7.5.6 Last No Energy Chip

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TYPE}{:PREAMBLEVAL \| :PREA }{:CHIPS}{:NLAST}SP<numeric>CR |
| **Description:** | This command sets the last no energy Bit of the message. |
| **Numeric:** | 0 for no energy chip<br>1 to 112 if the reference is a long Mode S<br>1 to 56 if the reference is a short Mode S (decimal ASCII). |
| **Default:** | 0 |
| **Example:** | :RGS:DO260:TYPE:PREA:CHIPS:NLAST 5\r |

### 5.8.8 START

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:START}CR |
| **Description:** | This command begins the execution of the DO260 test. |
| **Example:** | :RGS:DO260:START\r |
| **Returns:** | "*" is returned if the start command was able to be performed.<br>"?" is returned if the scenario was not able to be started. |

### 5.8.9 STOP

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:STOP}CR |
| **Description:** | This command stops the execution of the DO260 test. |
| **Example:** | :RGS:DO260:STOP\r |

### 5.8.10 TEST STATUS REQUEST

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TEST?} CR |
| **Description:** | This command returns the test transmission status. |
| **Example:** | RGS:DO260:TEST?\r |
| **Return:** | ON \| OFF |

#### 5.8.10.1 Trigger Parameters

#### 5.8.10.2 Mode

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TIMING}{:TRIGGER \| :TRIG}{:MODE}SP<numeric>CR | |
| **Description:** | This command sets the trigger mode.<br>Delay+ delays positively all the enabled generators according with each delay amount from the trigger source.<br>Delay- delays all the enable generators negatively.<br>Random alters the start of all the enable generators from transmission to transmission in the range specified.<br>Walk moves the starting position of the enable generators from the initial delay by 50 ns every transmission. | |
| **Numeric:** | 0 to 3 | |
| | **Value** | **Mode** |
| | 0 | Delay+ |
| | 1 | Delay- |
| | 2 | Random |
| | 3 | Walk |
| **Default:** | 0 (Delay +) | |
| **Example:** | :RGS:DO260:TIMING:TRIG:MODE 0\r | |

#### 5.8.10.3 Source

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TIMING}{:TRIGGER \| :TRIG}{:SOURCE}SP{GENA \| GENB \| GENC \| GEN D \| GENE \| GENF}CR |
| **Description:** | This command sets the generator trigger source.<br>In Low Power Mode, all generators are available.<br>In High Power Mode, only the generators GENA, GENC and GENE are available |
| **Default:** | Gen A |
| **Example:** | :RGS:DO260:TIMING:TRIG:SOURCE GENA\r |

#### 5.8.10.4 Random Position Width

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TIMING}{:TRIGGER \| :TRIG}{:RANDOM}{:WIDTH \| :WID}SP<numeric>CR |
| **Description:** | This command sets the width in ns of the random pulse. |
| **Numeric:** | 0 to 120000 ns (decimal ASCII). |
| **Default:** | 120000 ns |
| **Example:** | :RGS:DO260:TIMING:TRIG:RANDOM:WID 1200\r |
| **NOTE:** | This command is valid only if the trigger mode is Random. |

#### 5.8.10.5 Random Starting Position

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:DO260}{:TIMING}{:TRIGGER \| :TRIG}{:RANDOM}{:POSITION \| :POS}SP<numeric>CR |
| **Description:** | This command sets the relative delay in ns of the random pulse. This command is valid only if the trigger mode is Random. |
| **Numeric:** | -120000 to 120000 ns (decimal ASCII). |
| **Default:** | 0 |
| **Example:** | :RGS:DO260:TIMING:TRIG:RANDOM:POS 0\r |

## 5.9 SCENARIO COMMANDS

This set of commands allows the user to define dynamic and static intruders for TCAS.

### 5.9.1 ATCRBS PULSE PARAMETERS

This set of commands allows the user to define the ATCRBS reply pulse characteristics for TCAS scenarios.

#### 5.9.1.1 Delta Pulse Amplitude

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:PULSE}{:ATCRBS:CH:}{ 1 \| 2 \| 3}{:PF1 \| :PC1 \| :PA1 \| :PC2 \| :PA2 \| :PC4 \| :PA4 \| :PB1 \| :PD1 \| :PB2 \| :PD2 \| :PB4 \| :PD4 \| :PF2}{:DAMP}SP{0 \|-1}CR |
| **Description:** | This command sets the delta amplitude of the selected ATCRBS pulse to either 0 or -1 dB deviation. |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:PULSE:ATCRBS:CH:1:PF1:DAMP -1\r |

#### 5.9.1.2 Delta Pulse Position

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:PULSE}{:ATCRBS:CH:}{ 1 \| 2 \| 3 }{:PF1 \| :PC1 \| :PA1 \| :PC2 \| :PA2 \| :PC4 \| :PA4 \| :PB1 \| :PD1 \| :PB2 \| :PD2 \| :PB4 \| :PD4 \| :PF2}{:DPOS}SP<numeric>CR |
| **Description:** | This command sets the delta position of the selected ATCRBS pulse on the selected generator. |
| **Numeric:** | -1000 to 1000 ns in 25 ns steps (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:PULSE:ATCRBS:CH:2:PC1:DPOS 25\r |

#### 5.9.1.3 Delta Pulse Width

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:PULSE}{:ATCRBS:CH:}{1 \| 2 \| 3}{:PF1 \| :PC1 \| :PA1 \| :PC2 \| :PA2 \| :PC4 \| :PA4 \| :PB1 \| :PD1 \| :PB2 \| :PD2 \| :PB4 \| :PD4 \| :PF2}{:DWIDTH}SP<numeric>CR |
| **Description:** | This command sets the delta width of the selected ATCRBS pulse on the selected generator. |
| **Numeric:** | to 400 ns in 25 ns steps (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:PULSE:ATCRBS:CH:2:PC1:DWIDTH 50\r |

#### 5.9.1.4 Pulse Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:PULSE}{:ATCRBS:CH:}{ 1 \| 2 \| 3 3}{:PF1 \| :PC1 \| :PA1 \| :PC2 \| :PA2 \| :PC4 \| :PA4 \| :PB1 \| :PD1 \| :PB2 \| :PD2 \| :PB4 \| :PD4 \| :PF2}{:ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables (not visible) the selected ATCRBS pulse. |
| **Default:** | On |
| **Example:** | RGS:SCE:PULSE:ATCRBS:CH: 2:PC1:ENABLE ON\r |

### 5.9.2 INDIVIDUAL 1030 MESSAGES

The following set of commands allows the user to define a block of 1030 MHz interrogations. These commands are used in the Multi-Receiver menu. The Multi-Receiver menu is optional menu in the RGS-2000NG.

#### 5.9.2.1 1030 Message Block Repetition Rate

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:I1030}{:RATE}SP<numeric>CR |
| **Description:** | This command sets the block repetition rate. |
| **Numeric:** | 1 to 2500 (decimal ASCII) |
| **Example:** | :RGS:SCE:I1030:RATE 100\r |

#### 5.9.2.2 1030 Message Block Quantity

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:I1030}{:NMESS \| :NMESSAGES}SP<numeric>CR |
| **Description:** | This command sets the quantity of the 1030 messages in the block. |
| **Numeric:** | 1 to 1000 (decimal ASCII) |
| **Example:** | :RGS:SCE:I1030:NMESS 6\r |

#### 5.9.2.3 1030 Message Block Message Power

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:I1030:}<message number>{:PWR}SP<numeric>CR |
| **Description:** | This command sets the power level of the 1030 message selected. |
| **Numeric:** | High Power Mode: 1 to -69 dBm (decimal ASCII) |
| | Low Power Mode: -20 to -90 dBm (decimal ASCII) |
| | Configuration 7 : 1 to -98 dBm (decimal ASCII) |
| **Example:** | :RGS:SCE:I1030:1:PWR -30\r |

### 5.9.2.4 1030 Message Block Message Channel

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:I1030:}<message number>{:TXCH}SP<numeric>CR | |
| **Description:** | This command sets the 1030 message to reply on the specified generator. | |
| **Numeric:** | Value | Generator |
| | 1 | 1030RX |
| **Example:** | :RGS:SCE:I1030:1:TXCH 1\r | |

### 5.9.2.5 1030 Message Block Message Type

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:I1030:}<message number>{:TYPE} SP<numeric>CR | |
| **Description:** | This command sets the type of the 1030 message selected. | |
| **Numeric:** | Value | Generator |
| | 1 | Mode S Interrogation |
| | 2 | Mode A |
| | 3 | Mode C |
| | 4 | Mode A All Call |
| | 5 | Mode C All Call |
| | 6 | Mode A/Mode S All Call |
| | 7 | Mode C/Mode S All Call |
| **Example:** | :RGS:SCE:I1030:1:TYPE 4\r | |

### 5.9.2.6 1030 Message Block Message Data

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:I1030:}<message number>{:MESS: \| :MESSAGE} SP<numeric>CR |
| **Description:** | This command sets the data message for the selected 1030 message. |
| **Numeric:** | Short interrogation 0 - FFFFFFFFFFFFFF (14 hexadecimal ASCII) |
| | Long interrogation 0 – FFFFFFFFFFFFFFFFFFFFFFFFFFFF (28 hexadecimal ASCII) |
| | The last six characters are the Mode S Address. |
| **Example:** | :RGS:SCE:I1030:1:MESS 5A5A5A5A000002\r |

### 5.9.3 INTERROGATOR (GROUND STATIONS) PARAMETERS

#### 5.9.3.1 ENABLE

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:INTER: \| :INTERROGATOR:}<interrogator number>{:ENABLE \| :ENA}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the selected interrogator. |
| **Default:** | On |
| **Example:** | :RGS:SCE:INTER:1:ENA ON\r |

#### 5.9.3.2 Interval Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:INTER: \| :INTERROGATOR:}<interrogator number>{:INT: \| :INTERVAL:}<interval number>{:ENA \| :ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the selected interrogation interval. |
| **Default:** | On |
| **Example:** | :RGS:SCE:INTER:2:INT:1:ENA ON\r |

#### 5.9.3.3 Interval Message

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:INTER: \| :INTERROGATOR:}<interrogator number>{:INT: \| :INTERVAL:}<interval number>{:MESS \| :MESSAGE}SP<numeric>CR |
| **Description:** | This command sets the message for the selected interrogation interval. |
| **Numeric:** | Short interrogation 0 to FFFFFFFF (8 hexadecimal ASCII)<br>Long interrogation 0 to FFFFFFFFFFFFFFFFFFFFFF ( 22 hexadecimal ASCII) |
| **Example:** | :RGS:SCE:INTER:2:INT:2:MESS 280000002078CE\r |
| **NOTE:** | The address used to generate the PI field is the own address (UUT). |

#### 5.9.3.4 Interval Quantity

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:INTER: \| :INTERROGATOR:}<interrogator number>{:NINT \| :NINTERVALS} SP<numeric>CR |
| **Description:** | This command sets the quantity of interrogation intervals for the selected interrogator. |
| **Numeric:** | 0 to 10 (decimal ASCII) |
| **Example:** | :RGS:SCE:INTER:2:NINT 4\r |
| **NOTE:** | This command is valid only for TCAS type scenario. |

#### 5.9.3.5 Interval Start Time

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:INTER: | :INTERROGATOR:}<interrogator number>{:INT: | :INTERVAL:}<interval number>{:BEGIN}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the start time for the selected interrogation interval.</td></tr>
<tr><td>Numeric:</td><td>0 to 6550 seconds (decimal ASCII)</td></tr>
<tr><td>Default:</td><td>0</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:INTER:2:INT:4:BEGIN 0.4\r</td></tr>
</table>

#### 5.9.3.6 Interval Stop Time

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:INTER: | :INTERROGATOR:}<interrogator number>{:INT: | :INTERVAL:}<interval number>{:END }SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the stop time for the selected interrogation interval.</td></tr>
<tr><td>Numeric:</td><td>0 to 6550 seconds (decimal ASCII)</td></tr>
<tr><td>Default:</td><td>Scenario stop time</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:INTER:2:INT:4:END 0.5\r</td></tr>
</table>

#### 5.9.3.7 Quantity

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:INTER | :INTERROGATOR}{:QUAN | :QUANTITY}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the number of interrogators (ground stations).</td></tr>
<tr><td>Numeric:</td><td>0 to 15 (decimal ASCII)</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:INTER:QUAN 3\r</td></tr>
</table>

#### 5.9.3.8 Start Time

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:INTER: | :INTERROGATOR:}<interrogator number>{:BEGIN}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the start time for the selected interrogator.</td></tr>
<tr><td>Numeric:</td><td>0 to 6550 seconds (decimal ASCII)</td></tr>
<tr><td>Default:</td><td>0</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:INTER:2:BEGIN 2\r</td></tr>
</table>

#### 5.9.3.9 Stop Time

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:INTER: | :INTERROGATOR:}<interrogator number>{:END}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the stop time for the selected interrogator.</td></tr>
<tr><td>Numeric:</td><td>0 to 6550 seconds (decimal ASCII)</td></tr>
<tr><td>Default:</td><td>Scenario time</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:INTER:2:END 2.6\r</td></tr>
</table>

#### 5.9.3.10 UF Message

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:INTER: \| :INTERROGATOR:}<interrogator number>{:UF}SP{UF0 \| UF4 \| UF5 \| UF11 \| COORDINATION \| RA \| BROADCAST \| UF20 \| UF21}CR |
| **Description:** | This command sets the interrogation message for the selected interrogator. |
| **Default:** | UF4 |
| **Example:** | :RGS:SCE:INTER:2:UF UF11\r |

### 5.9.4 INTRUDERS DEFINITION PARAMETERS

#### 5.9.4.1 Airborne Position Message

This set of commands allows the user to define the Airborne Position Squitter for the specified intruder (target). Latitude, longitude and altitude information are defined in Section 5.9.4.19, Position Parameters.

##### 5.9.4.1.1 Airborne Position Message Parameters

###### 5.9.4.1.1.1 CPR Encoding Format

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:CPR}SP{ODDEVEN \| ODD \| EVEN}CR | |
| **Description:** | This command sets the selected intruder airborne or surface position squitter compact position reporting format type to the specified value. | |
| **Default:** | ODDEVEN | |
| **Value** | ODDEVEN | Alternate between “even” and “odd” CPR encoding. |
| | ODD | Only “odd” CPR encoding. The transmission of the Position Even Squitter is turned off. Any schedule definition for the Position Even Squitter is ignored during the scenario compilation. |
| | EVEN | Only “even” CPR encoding. The transmission of the Position Odd Squitter is turned off. Any schedule definition for the Position Odd Squitter is ignored during the scenario compilation. |
| **Example:** | :RGS:SCE:STAT:1:CPR EVEN\r | |

###### 5.9.4.1.1.2 NIC Supplement-B

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:POSNICB}SP<numeric>CR |
| **Description:** | This command sets the selected intruder airborne position squitter NIC supplement-b to the specified value, if the intruder is an extended Mode S or is a TIS-B with message type ADS-B (Valid only for DO260 B). |
| **Numeric:** | 0 to 1 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:STAT:1:POSNICB 1\r |

### 5.9.4.1.1.3 Single Antenna Flag

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:POSSAF}SP<numeric>CR |
| **Description:** | This command sets the selected intruder airborne position squitter single antenna flag field to the specified value, if the intruder is an extended Mode S or is a TIS-B with message type ADS-B (Valid only for DO260 and DO260A). |
| **Numeric:** | 0 to 1 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:STAT:1:POSSAF 1\r |

### 5.9.4.1.1.4 Surveillance Status

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:POSSS}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder airborne position squitter surveillance status to the specified code. | |
| **Numeric:** | 0 to 3 (decimal ASCII) | |
| | **Value** | **Surveillance Status** |
| | 0 | No Condition Information |
| | 1 | Permanent Alert Condition |
| | 2 | Temporary Alert Condition |
| | 3 | Special Position Identification Condition |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:POSSS 2\r | |

### 5.9.4.1.1.5 Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:POSTIME}SP<numeric>CR |
| **Description:** | This command sets the selected intruder airborne position squitter time field to the specified value. |
| **Numeric:** | 0 to 1 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:STAT:1:POSTIME 1\r |

### 5.9.4.1.1.6 Type Code

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{: STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:POSTYPE}SP<numeric>CR |
| **Description:** | This command sets the selected intruder airborne position squitter to the specified type code. |
| **Numeric:** | 0 or 9 to 22 (decimal ASCII), except 19. |
| **Default:** | 9 |
| **Example:** | :RGS:SCE:STAT:1:POSTYPE 22\r |

### 5.9.4.1.2 Airborne Position Message Schedule

Airborne or Surface Position squitters are transmitted by the Unit at a rate of 0.5 seconds. The CPR encoding is alternated every 0.5 seconds unless the user specifies to only transmit odd or even encoding.

Dynamic intruders (targets) allow definition of multiple time intervals where the Airborne or Surface Position odd and even squitter can be enabled or disabled.

Static intruders (targets) allow the user to enable or disable the Airborne or Surface Position squitter for the entire scenario.

#### 5.9.4.1.2.1 Dynamic Position Schedule

##### 5.9.4.1.2.1.1 Interval Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:SPOSEVEN \| :SPOSODD}{:INT: \| :INTERVAL:}<interval number>{:ENA \| :ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the position even or odd squitter message of the specified intruder. |
| **Default:** | On |
| **Example:** | :RGS:SCE:DYN:1:SPOSODD:INT:1:ENA ON\r |

##### 5.9.4.1.2.1.2 Interval Quantity

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:SPOSEVEN \| :SPOSODD}{:NINT \| :NINTERVALS}SP<numeric>CR |
| **Description:** | This command sets the number of position even or odd squitter message intervals for the selected intruder. |
| **Numeric:** | 0 to 255 (decimal ASCII) |
| **Default:** | By default, the spaces not defined between intervals are considered off. |
| **Example:** | :RGS:SCE:DYN:1:SPOSODD:NINT 128\r |
| **NOTE:** | Only the user can define the intervals where the message is transmitted. |

##### 5.9.4.1.2.1.3 Interval Start Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:SPOSEVEN \| :SPOSODD}{:INT: \| :INTERVAL:}<interval number>{:BEGIN}SP<numeric>CR |
| **Description:** | This command sets the start time for the selected position even or odd squitter message interval for the selected intruder. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) (Resolution 0.1) |
| **Default:** | By default, the spaces not defined between intervals are considered off. |
| **Example:** | :RGS:SCE:DYN:1:SPOSEVEN:INT:2:BEGIN 22\r |
| **NOTE:** | Only the user can define the intervals where the message is transmitted. |

#### 5.9.4.1.2.1.4 Interval Stop Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:SPOSEVEN \| :SPOSODD}{:INT: \| :INTERVAL:}<interval number>{:END}SP<numeric>CR |
| **Description:** | This command sets the stop time for the selected position even or odd squitter message interval for the selected intruder. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) (Resolution 0.1) |
| **Default:** | By default, the spaces not defined between intervals are considered off. |
| **Example:** | :RGS:SCE:DYN:1:SPOSODD:INT:2:END 24\r |
| **NOTE:** | Only the user can define the intervals where the message is transmitted. |

### 5.9.4.1.2.2 Static Position Schedule

#### 5.9.4.1.2.2.1 Interval Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruder number>{:SPOSEVEN \| :SPOSODD}{:ENA \| :ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the position even or odd squitter message of the specified intruder. |
| **Default:** | On |
| **Example:** | :RGS:SCE:STAT:1:SPOSEVEN:ENA ON\r |

## 5.9.4.2 Aircraft Operational Status Message

This set of commands allows the user to define the Operational Status Squitter for the specified intruder (target).

### 5.9.4.2.1 Aircraft Operational Status Message Parameters

#### 5.9.4.2.1.1 1090 ES IN

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAOS}{:ESI}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder aircraft operational status squitter 1090 ES In field to the specified value. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | No capability to receive 1090 MHz Extended Squitter Messages |
| | 1 | Can receive 1090 MHz Extended Squitter Messages |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:STAT:1:SAOS:ESI 1\r | |

#### 5.9.4.2.1.2 Air Referenced Velocity

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAOS}{:ARV}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder aircraft operational status squitter air referenced velocity field to the specified value. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | No Air Referenced Velocity Report Capability |
| | 1 | Can generate Air Referenced Velocity Report |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:STAT:1:SAOS:ARV 1\r | |

#### 5.9.4.2.1.3 Aircraft/Vehicle Length and Width Code

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{: SAOS }{:AVSIZE}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder aircraft operational status squitter aircraft/vehicle length and width code field to the specified value. | |
| **Numeric:** | 0 to 15 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | No Data or Unknown |
| | 1 | Length < 15 meters Width < 23 meters |
| | 2 | Length < 25 meters Width < 28.5 meters |
| | 3 | Length < 25 meters Width < 34 meters |
| | 4 | Length < 35 meters Width < 33 meters |
| | 5 | Length < 35 meters Width < 38 meters |
| | 6 | Length < 45 meters Width < 39.5 meters |
| | 7 | Length < 45 meters Width < 45 meters |
| | 8 | Length < 55 meters Width < 45 meters |
| | 9 | Length < 55 meters Width < 52 meters |
| | 10 | Length < 65 meters Width < 59.5 meters |
| | 11 | Length < 65 meters Width < 67 meters |
| | 12 | Length < 75 meters Width < 72.5 meters |
| | 13 | Length < 75 meters Width < 80 meters |
| | 14 | Length < 85 meters Width < 80 meters |
| | 15 | Length < 85 meters Width < 90 meters |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:STAT:1:SAOS:AVSIZE 8\r | |

#### 5.9.4.2.1.4 B2 Low Power

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAOS}{:B2L}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder aircraft operational status squitter B2 low power field to the specified value. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Transmitter meets applicable class requirements |
| | 1 | Transmitter meets Class B2 except output power is < 70 Watts |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:STAT:1:SAOS:B2L 1\r | |

#### 5.9.4.2.1.5 Barometric Altitude Integrity Code

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAOS}{:NICB}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder aircraft operational status squitter barometric altitude integrity code field to the specified value. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Gilham Altitude Source with no cross-checking |
| | 1 | Cross-Checked Gilham or any other Altitude Source |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:STAT:1:SAOS:NICB 1\r | |

#### 5.9.4.2.1.6 Barometric Altitude Quality

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:NACP}{:BAQ}SP<numeric>CR |
| **Description:** | This command sets the selected intruder aircraft operational status squitter barometric altitude quality field to the specified value. |
| **Numeric:** | 0 to 1 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:DYN:1:SAOS:BAQ 1\r |

#### 5.9.4.2.1.7 CDTI Traffic Display Capability

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| :DYNAMIC:}<intruder number>{:SAOS}{:CDTI}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder aircraft operational status squitter CDTI traffic display capability field to the specified value. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | No Cockpit Display of Traffic Information (CDTI) capability |
| | 1 | CDTI Operational |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:SAOS:CDTI 1\r | |

#### 5.9.4.2.1.8 DO-260 Version

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:DO260}SP{A \| B}CR |
| **Description:** | This command sets the selected intruder DO-260 squitters to the specified revision level of DO-260. |
| **Default:** | - |
| **Example:** | :RGS:SCE:DYN:1:DO260 A\r |

#### 5.9.4.2.1.9 Geometric Velocity Accuracy

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAOS}{:GVA}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder aircraft operational status squitter geometric velocity accuracy field to the specified value. | |
| **Numeric:** | 0 to 3(decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Unknown or > 150 meters |
| | 1 | ≤ 150 meters |
| | 2 | ≤ 45 meters |
| | 3 | Reserved |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:STAT:1:SAOS:GVA 1\r | |

#### 5.9.4.2.1.10 Horizontal Reference Direction

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAOS}{:HRD}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder aircraft operational status squitter horizontal reference direction field to the specified value. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | True North |
| | 1 | Magnetic North |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:SAOS:HRD 1\r | |

#### 5.9.4.2.1.11 Ident Switch Active

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAOS}{:IDT}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder aircraft operational status squitter IDENT switch active field to the specified value. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | IDENT not active |
| | 1 | Set for 18 seconds after IDENT switch is pressed. |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:SAOS:IDT 1\r | |

#### 5.9.4.2.1.12 Lateral Axis GPS Antenna Offset

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAOS}{:GPSLAT}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder aircraft operational status squitter lateral axis GPS Antenna offset field to the specified value. | |
| **Numeric:** | 0 to 7 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | No Data |
| | 1 | 2 meters Left |
| | 2 | 4 meters Left |
| | 3 | 6 meters Left |
| | 4 | 0 |
| | 5 | 2 meters Right |
| | 6 | 4 meters Right |
| | 7 | 6 meters Right |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:STAT:1:SAOS:GPSLAT 3\r | |

#### 5.9.4.2.1.13 Longitudinal Axis GPS Antenna Offset

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAOS}{:GPSLONG}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder aircraft operational status squitter longitudinal axis GPS Antenna offset field to the specified value. | |
| **Numeric:** | 0 to 31 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | No Data |
| | 1 | Applied by sensor |
| | 2 | 2 meters |
| | 3 | 4 meters |
| | 4 to 31 | 6 to 60 meters |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:STAT:1:SAOS:GPSLONG 3\r | |

#### 5.9.4.2.1.14 Mode Subtype

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAOS}{:OM}SP<numeric>CR |
| **Description:** | This command sets the selected intruder aircraft operational status squitter operational Mode Subtype field to the specified value. |
| **Numeric:** | 0 to 3 (decimal ASCII) |
| **Example:** | :RGS:SCE:STAT:1:SAOS:OM 2\r |

### 5.9.4.2.1.15 Navigation Accuracy Category for Position

| | | | |
|---|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:NACP}{:GPSLAT}SP<numeric>CR | | |
| **Description:** | This command sets the selected intruder aircraft operational status squitter navigation accuracy category for position field to the specified value. | | |
| **Numeric:** | 0 to 15 (decimal ASCII) | | |
| | **Value** | **NACP** | **Comment** |
| | 0 | EPU ≥ 10 Nm | Unknown Accuracy |
| | 1 | EPU < 10 Nm | RNP-10 |
| | 2 | EPU < 4 Nm | RNP-4 |
| | 3 | EPU < 2 Nm | RNP-2 |
| | 4 | EPU < 1 Nm | RNP-1 |
| | 5 | EPU < 0.5 Nm | RNP-0.5 |
| | 6 | EPU < 0.3 Nm | RNP-0.3 |
| | 7 | EPU < 0.1 Nm | RNP-0.1 |
| | 8 | EPU < 0.05 Nm | GPS (SA on) |
| | 9 | EPU < 30 m and VEPU < 45 m | GPS (SA off) |
| | 10 | EPU < 10 m and VEPU < 15 m | WAAS |
| | 11 | EPU < 3 m and VEPU < 4m | LAAS |
| | 12 to 15 | Reserved | Reserved |
| **Default:** | 0 | | |
| **Example:** | :RGS:SCE:STAT:1:NACP:GPSLAT 2\r | | |

### 5.9.4.2.1.16 Navigation Accuracy Category for Velocity

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAOS}{:NACV}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder aircraft operational status squitter navigation accuracy category for velocity field to the specified value. | |
| **Numeric:** | 0 to 7 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Unknown or > 10 m/s |
| | 1 | < 10 m/s |
| | 2 | < 3 m/s |
| | 3 | < 1m/s |
| | 4 | < 0.3 m/s |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:SAOS:NACV 1\r | |

### 5.9.4.2.1.17 NIC Supplement-A

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:STAT: | :STATIC: | : DYN: | : DYNAMIC:}<intruder number>{:SAOS}{:NISA}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the selected intruder aircraft operational status squitter NIC Supplement-A field to the specified value.</td></tr>
<tr><td>Numeric:</td><td>0 to 1 (decimal ASCII)</td></tr>
<tr><td>Default:</td><td>0</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:DYN:1:SAOS:NISA 1\r</td></tr>
</table>

### 5.9.4.2.1.18 NIC Supplement-B

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:STAT: | :STATIC: | : DYN: | : DYNAMIC:}<intruder number>{:SAOS}{:NISB}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the selected intruder aircraft operational status squitter NIC Supplement-B field to the specified value.</td></tr>
<tr><td>Numeric:</td><td>0 to 1 (decimal ASCII)</td></tr>
<tr><td>Default:</td><td>0</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:DYN:1:SAOS:NISB 1\r</td></tr>
</table>

### 5.9.4.2.1.19 NIC Supplement-C

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:STAT: | :STATIC: | : DYN: | : DYNAMIC:}<intruder number>{:SAOS}{:NISC}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the selected intruder aircraft operational status squitter NIC Supplement-C field to the specified value.</td></tr>
<tr><td>Numeric:</td><td>0 to 1 (decimal ASCII)</td></tr>
<tr><td>Default:</td><td>0</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:DYN:1:SAOS:NISC 1\r</td></tr>
</table>

### 5.9.4.2.1.20 Not TCAS

<table>
<tr><td>Command Syntax:</td><td colspan="2">{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:STAT: | :STATIC: | : DYN: | : DYNAMIC:}<intruder number>{:SAOS}{:NT}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td colspan="2">This command sets the selected intruder aircraft operational status squitter “Not TCAS” field to the specified value.</td></tr>
<tr><td>Numeric:</td><td colspan="2">0 to 1 (decimal ASCII)</td></tr>
<tr><td></td><td>Value</td><td>Meaning</td></tr>
<tr><td></td><td>0</td><td>TCAS Operational or Unknown</td></tr>
<tr><td></td><td>1</td><td>TCAS not installed or not operational</td></tr>
<tr><td>Default:</td><td colspan="2">0</td></tr>
<tr><td>Example:</td><td colspan="2">:RGS:SCE:DYN:1:SAOS:NT 1\r</td></tr>
</table>

#### 5.9.4.2.1.21 Position Offset Applied

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAOS}{:POA}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder aircraft operational status squitter position offset applied field to the specified value. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Position is antenna referenced |
| | 1 | Position is adjusted to Surveillance Position Reference Point |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:SAOS:POA 1\r | |

#### 5.9.4.2.1.22 Receiving Air Traffic Control Services

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAOS}{:ATC}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder aircraft operational status squitter receiving air traffic control services field to the specified value. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Required Setting |
| | 1 | Reserved |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:SAOS:ATC 1\r | |

#### 5.9.4.2.1.23 Reserved for ADS-R Flag

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAOS}{:ADR}SP<numeric>CR |
| **Description:** | This command sets the selected intruder aircraft operational status squitter reserved for ADS-R flag field to the specified value. |
| **Numeric:** | 0 to 1 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:DYN:1:SAOS:ADR 1\r |

#### 5.9.4.2.1.24 Service Level MSB

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAOS}{:SLM}SP<numeric>CR |
| **Description:** | This command sets the selected intruder aircraft operational status squitter service level MSB field to the specified value. |
| **Numeric:** | 0 to 3 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:DYN:1:SAOS:SLM 3\r |

#### 5.9.4.2.1.25 Service Level LSB

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| :DYNAMIC:}<intruder number>{:SAOS}{:SLL}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder aircraft operational status squitter service level LSB field to the specified value. | |
| **Numeric:** | 0 to 3 (decimal ASCII) | |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:SAOS:SLL 2\r | |

#### 5.9.4.2.1.26 Single Antenna Field

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAOS}{:SAF}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder aircraft operational status squitter single antenna field to the specified value. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Antenna Diversity Operational |
| | 1 | Single Antenna Operational |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:STAT:1:SAOS:SAF 1\r | |

#### 5.9.4.2.1.27 Source Integrity level

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAOS}{:SIL}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder aircraft operational status squitter source integrity level field to the specified value. | |
| **Numeric:** | 0 to 3 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Unknown |
| | 1 | 1x10$^{-3}$ per flight hour or per sample |
| | 2 | 1x10$^{-5}$ per flight hour or per sample |
| | 3 | 1x10$^{-7}$ per flight hour or per sample |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:STAT:1:SAOS:SIL 2\r | |

#### 5.9.4.2.1.28 Source Integrity Level (SIL) Supplement

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAOS}{:SILS}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder aircraft operational status squitter SIL supplement field to the specified value. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Probability of Exceeding NIC Radius of Containment “per Hour” |
| | 1 | Probability of Exceeding NIC Radius of Containment “per Sample” |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:STAT:1:SAOS:SILS 1\r | |

#### 5.9.4.2.1.29 System Design Assurance

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAOS}{:SDA}SP<numeric>CR |
| **Description:** | This command sets the selected intruder aircraft operational status squitter system design assurance field to the specified value. |
| **Numeric:** | 0 to 3 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:DYN:1:SAOS:SDA 3\r |

#### 5.9.4.2.1.30 Target State Report

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAOS}{:TS}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder aircraft operational status squitter target state report field to the specified value. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | Value | Meaning |
| | 0 | No Target State Report Capability |
| | 1 | Can generate Target State Report |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:STAT:1:SAOS:TS 1\r | |

#### 5.9.4.2.1.31 TCAS Resolution Advisory Active

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAOS}{:RA}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder aircraft operational status squitter TCAS resolution advisory active field to the specified value. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | Value | Meaning |
| | 0 | TCAS Resolution Advisory is inactive or Unknown |
| | 1 | TCAS Resolution Advisory is Active |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:SAOS:RA 1\r | |

#### 5.9.4.2.1.32 Track Angle/Heading

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAOS}{:TOH}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder aircraft operational status squitter track angle/heading field to the specified value. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | Value | Meaning |
| | 0 | Track Angle |
| | 1 | Heading |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:SAOS:TOH 1\r | |

#### 5.9.4.2.1.33 Trajectory Change Report

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAOS}{:TC}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder aircraft operational status squitter trajectory change report field to the specified value. | |
| **Numeric:** | 0 to 3 (decimal ASCII) | |
| | Value | Meaning |
| | 0 | No Trajectory Change Report Capability |
| | 1 | Can generate Trajectory Change +0 Report only |
| | 2 | Can generate multiple Trajectory Change Reports |
| | 3 | Reserved |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:SAOS:TC 2\r | |

#### 5.9.4.2.1.34 UAT IN

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAOS}{:UAT}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder aircraft operational status squitter "UAT In" field to the specified value. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | Value | Meaning |
| | 0 | No Capability to Receive ADS-B UAT Messages |
| | 1 | Receives UAT ADS-B Messages |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:STAT:1:SAOS:UAT 1\r | |

### 5.9.4.2.2 Aircraft Operational Status Message Schedule

Airborne Operational Status squitter is transmitted by the Unit at a rate of 2.0 seconds. Dynamic intruders (targets) allow definition of multiple time intervals were the Airborne Operation Status squitter is enabled or disabled.

Static intruders (targets) allow the user to enable or disable the Airborne Operational Status squitter for the entire scenario.

#### 5.9.4.2.2.1 Dynamic AOS Schedule

##### 5.9.4.2.2.1.1 Interval Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:SAOS}{:INT: \| :INTERVAL:}<interval number>{:ENA \| :ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the aircraft operational status squitter message of the specified intruder. |
| **Default:** | On |
| **Example:** | :RGS:SCE:DYN:1:SAOS:INT:1:ENA ON\r |

##### 5.9.4.2.2.1.2 Interval Quantity

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:SAOS}{:NINT \| :NINTERVALS}SP<numeric>CR |
| **Description:** | This command sets the number of aircraft operational status squitter message intervals for the selected intruder. |
| **Numeric:** | 0 to 255 (decimal ASCII) |
| **Default:** | By default, the spaces not defined between intervals are considered off. |
| **Example:** | :RGS:SCE:DYN:1:SAOS:NINT 3\r |
| **NOTE:** | Only the user can define the intervals where the message is transmitted. |

#### 5.9.4.2.2.1.3 Interval Start Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:SAOS}{:INT: \| :INTERVAL:}<interval number>{:BEGIN}SP<numeric>CR |
| **Description:** | This command sets the start time for the selected aircraft operational status squitter message interval for the selected intruder. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) (Resolution 0.1) |
| **Default:** | By default, the spaces not defined between intervals are considered off. |
| **Example:** | :RGS:SCE:DYN:1:SAOS:INT:2:BEGIN 3.8\r |
| **NOTE:** | Only the user can define the intervals where the message is transmitted. |

#### 5.9.4.2.2.1.4 Interval Stop Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:SAOS}{:INT: \| :INTERVAL:}<interval number>{:END}SP<numeric>CR |
| **Description:** | This command sets the stop time for the selected aircraft operational status squitter message interval for the selected intruder. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) (Resolution 0.1) |
| **Default:** | By default, the spaces not defined between intervals are considered off. |
| **Example:** | :RGS:SCE:DYN:1:SAOS:INT:2:END 5.8\r |
| **NOTE:** | Only the user can define the intervals where the message is transmitted. |

### 5.9.4.2.2.2 Static AOS Schedule

#### 5.9.4.2.2.2.1 Interval Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruder number>{:SAOS}{:ENA \| :ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the aircraft operational status squitter message of the specified intruder. |
| **Default:** | On |
| **Example:** | :RGS:SCE:STAT:1:SAOS:ENA ON\r |

### 5.9.4.3 Aircraft Status Message

This set of commands allows the user to define the Aircraft/Emergency Status Squitter for the specified intruder (target).

#### 5.9.4.3.1 Aircraft Status Message Parameters

##### 5.9.4.3.1.1 Active Resolution Advisories

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT:\| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAS}{:ARA}SP<numeric>CR |
| **Description:** | This command sets the selected intruder Aircraft Status TCAS Resolution Advisory squitter ARA field to the specified value, if the intruder is an extended Mode S or an ADS-R and the aircraft status subtype selected is TCAS Resolution Advisory (2). |
| **Numeric:** | 0 to 3FFF (hex ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:STAT:2:SAS:ARA 3FA1\r |

##### 5.9.4.3.1.2 Emergency/Priority Status

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT:\| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAS}{:EPS}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder aircraft status squitter emergency/priority status field to the specified value, if the intruder is an extended Mode S or an ADS-R and the aircraft status subtype selected is Emergency/Priority Status (1). | |
| **Numeric:** | 0 to 7 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | No emergency |
| | 1 | General Emergency |
| | 2 | Lifeguard/medical emergency |
| | 3 | Minimum fuel |
| | 4 | No communications |
| | 5 | Unlawful interference |
| | 6 | Downed Aircraft |
| | 7 | Reserved |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:STAT:2:SAS:EPS 3\r | |

#### 5.9.4.3.1.3 Multiple Threat Encounter

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT:\| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAS}{:MTE}SP<numeric>CR |
| **Description:** | This command sets the selected intruder Aircraft Status TCAS Resolution Advisory squitter MTE field to the specified value, if the intruder is an extended Mode S or an ADS-R and the aircraft status subtype selected is TCAS Resolution Advisory (2). |
| **Numeric:** | 0 to 1 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:STAT:2:SAS:MTE 1\r |

#### 5.9.4.3.1.4 RA Complements Record

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT:\| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAS}{:RAC}SP<numeric>CR |
| **Description:** | This command sets the selected intruder Aircraft Status TCAS Resolution Advisory squitter RAC field to the specified value, if the intruder is an extended Mode S or an ADS-R and the aircraft status subtype selected is TCAS Resolution Advisory (2). |
| **Numeric:** | 0 to 15 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:STAT:2:SAS:RAC 5\r |

#### 5.9.4.3.1.5 RA Terminated Indicator

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT:\| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAS}{:RAT}SP<numeric>CR |
| **Description:** | This command sets the selected intruder Aircraft Status TCAS Resolution Advisory squitter RAT field to the specified value, if the intruder is an extended Mode S or an ADS-R and the aircraft status subtype selected is TCAS Resolution Advisory (2). |
| **Numeric:** | 0 to 1 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:STAT:2:SAS:RAT 1\r |

#### 5.9.4.3.1.6 Subtype

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT:\| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAS}{:SUBTYPE}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder aircraft status squitter subtype field to the specified value, if the intruder is an extended Mode S. | |
| **Numeric:** | 1 to 2 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 1 | Emergency/Priority Status |
| | 2 | TCAS Resolution Advisory (RA) |
| **Default:** | 1 | |
| **Example:** | :RGS:SCE:STAT:3:SAS:SUBTYPE 2\r | |

#### 5.9.4.3.1.7 Threat Identity Data

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT:\| :STATIC: \| : DYN: \| :DYNAMIC:}<intruder number>{:SAS}{:TID}SP<numeric>CR |
| **Description:** | This command sets the selected intruder Aircraft Status TCAS Resolution Advisory squitter TID field to the specified value, if the intruder is an extended Mode S or an ADS-R and the aircraft status subtype selected is TCAS Resolution Advisory (2). |
| **Numeric:** | 0 to 3FFFFFF (hex ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:STAT:3:SAS:TID 1FAB27A\r |

#### 5.9.4.3.1.8 Threat Type Indicator

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT:\| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:SAS}{:TTI}SP<numeric>CR |
| **Description:** | This command sets the selected intruder Aircraft Status TCAS Resolution Advisory squitter TTI field to the specified value, if the intruder is an extended Mode S or an ADS-R and the aircraft status subtype selected is TCAS Resolution Advisory (2). |
| **Numeric:** | 0 to 3 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:STAT:3:SAS:TTI 2\r |

### 5.9.4.3.2 Aircraft Status Message Schedule

Aircraft/Emergency Status squitter is transmitted by the Unit at a rate of 1.0 second.

Dynamic intruders (targets) allow definition of multiple time intervals were the Aircraft/Emergency Status squitter can be enabled or disabled.

Static intruders (targets) allow the user to enable or disable the Aircraft/Emergency Status squitter for the entire scenario.

#### 5.9.4.3.2.1 Dynamic Aircraft Status Schedule

##### 5.9.4.3.2.1.1 Interval Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:SAS}{:INT: \| :INTERVAL:}<interval number>{:ENA \| :ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the aircraft status squitter message of the specified intruder. |
| **Default:** | On |
| **Example:** | :RGS:SCE:DYN:2:SAS:INT:1:ENA ON\r |

#### 5.9.4.3.2.1.2 Interval Quantity

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:SAS}{:NINT \| :NINTERVALS}SP<numeric>CR |
| **Description:** | This command sets the number of aircraft status squitter message intervals for the selected intruder. |
| **Numeric:** | 0 to 255 (decimal ASCII) |
| **Default:** | By default, the spaces not defined between intervals are considered off. |
| **Example:** | :RGS:SCE:DYN:2:SAS:NINT 2\r |
| **NOTE:** | Only the user can define the intervals where the message is transmitted. |

#### 5.9.4.3.2.1.3 Interval Start Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:SAS}{:INT: \| :INTERVAL:}<interval number>{:BEGIN}SP<numeric>CR |
| **Description:** | This command sets the start time for the selected aircraft status squitter message interval for the selected intruder. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) (Resolution 0.1) |
| **Default:** | By default, the spaces not defined between intervals are considered off. |
| **Example:** | :RGS:SCE:DYN:2:SAS:INT:2:BEGIN 222.1\r |
| **NOTE:** | Only the user can define the intervals where the message is transmitted. |

#### 5.9.4.3.2.1.4 Interval Stop Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:SAS}{:INT: \| :INTERVAL:}<interval number>{:END}SP<numeric>CR |
| **Description:** | This command sets the stop time for the selected aircraft status squitter message interval for the selected intruder. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) (Resolution 0.1) |
| **Default:** | By default, the spaces not defined between intervals are considered off. |
| **Example:** | :RGS:SCE:DYN:2:SAS:INT:2:END 222.1\r |
| **NOTE:** | Only the user can define the intervals where the message is transmitted. |

### 5.9.4.3.2.2 Static Aircraft Status Schedule

#### 5.9.4.3.2.2.1 Interval Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruder number>{:SAS}{:ENA \| :ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the aircraft status squitter message of the specified intruder. |
| **Default:** | On |
| **Example:** | :RGS:SCE:STAT:2:SAS:ENA ON\r |

#### 5.9.4.4 Altitude Reporting

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:ALTRPT}SP{ON \| OFF}CR | |
| **Description:** | This command sets the altitude reporting for the selected intruder on or off. | |
| | If set to off: | |
| | **Mode C** | |
| | Intruder replies to an ATCRBS interrogation with only the framing pulses (F1 and F2). | |
| | **Mode S Extended, TIS-B or ADS-R** | |
| | Altitude data is not available. For example, DF0 contains all zero in Altitude Code. | |
| **Default:** | On | |
| **Example:** | :RGS:SCE:STAT:2:ALTRPT ON\r | |

#### 5.9.4.5 ATCRBS Parameters

##### 5.9.4.5.1 Altitude Mode

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:AMODE}SP{GILHAM \| BINARY}CR |
| **Description:** | This command sets the altitude data mode to either Gilham or Binary. |
| **Numeric:** | Altitude Binary Mode: -1000 to 50175 feet in 25 feet resolution<br>Altitude Gilham Mode: -1000 to 126700 feet in 100 feet resolution |
| **Default:** | Binary |
| **Example:** | :RGS:SCE:STAT:2:AMODE GILHAM\r |

##### 5.9.4.5.2 Mode A Code

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:ACODE}SP<numeric>CR |
| **Description:** | This command sets the Mode A code. |
| **Numeric:** | 0 to 7777 (octal ASCII) |
| **Default:** | 0000 |
| **Example:** | :RGS:SCE:STAT:2:ACODE 6532\r |

#### 5.9.4.5.3 Reply Antenna Criteria 1

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:WS1:}<wslevel>{:RPLYANT} SP{TOP \| BOTTOM \| ALTITUDE}CR |
| **Description:** | This command sets the reply criteria for whisper shout level 1 of an ATCRBS intruder. Whisper shout level is a number between 0 and 255. The reply antenna can be top, bottom or by altitude (reference to the own aircraft altitude). |
| **Numeric:** | wslevel = 0 to FF (hexadecimal ASCII characters) |
| **Default:** | Whisper/Shout 0, Reply antenna by altitude |
| **Example:** | :RGS:SCE:STAT:2:WS1:23:RPLYANT TOP\r |
| **NOTE:** | This command is only used for ATCRBS intruders. |

#### 5.9.4.5.4 Reply Antenna Criteria 2

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:WS2:}<wslevel>{:RPLYANT}SP {TOP \| BOTTOM \| ALTITUDE}CR |
| **Description:** | This command sets the reply criteria for whisper shout level 2 of an ATCRBS intruder. Whisper shout level is a number between 0 and 255. The reply antenna can be top, bottom, or by altitude (reference to the own aircraft altitude). |
| **Numeric:** | wslevel = 0 to FF (hexadecimal ASCII characters) |
| **Default:** | Whisper/Shout 0, Reply antenna by altitude |
| **Example:** | :RGS:SCE:STAT:2:WS2:30:RPLYANT BOTTOM\r |
| **NOTE:** | This command is only used for ATCRBS intruders. |

#### 5.9.4.5.5 Reply Quadrant Criteria 1

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:WS1:}<wslevel>{:RPLYQUAD}SP{FORWARD \| RIGHT \| LEFT \| AFTER \| OMNI \| LOCATION }CR |
| **Description:** | This command sets the reply criteria for whisper shout level 1 of an ATCRBS intruder. Whisper shout level is a number between 0 and 255. The reply quadrant can be forward, right, left, after, Omni (any quadrant) or location (reference to own aircraft bearing). |
| **Numeric:** | wslevel = 0 to FF (hexadecimal ASCII characters) |
| **Default:** | Whisper/Shout 0, Forward |
| **Example:** | :RGS:SCE:STAT:2:WS1:66:RPLYQUAD FORWARD\r |
| **NOTE:** | This command is only used for ATCRBS intruders. |

#### 5.9.4.5.6 Reply Quadrant Criteria 2

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:WS2:}<wslevel>{:RPLYQUAD}SP{FORWARD \| RIGHT \| LEFT \| AFTER \| OMNI \| LOCATION }CR |
| **Description:** | This command sets the reply criteria for whisper shout level 2 of an ATCRBS intruder. Whisper shout level is a number between 0 and 255. The reply quadrant can be forward, right, left, after, Omni (any quadrant) or location (reference to own aircraft bearing). |
| **Numeric:** | wslevel = 0 to FF (hexadecimal ASCII characters) |
| **Default:** | Whisper/Shout 0, Forward |
| **Example:** | :RGS:SCE:STAT:2:WS2:81:RPLYQUAD RIGHT\r |
| **NOTE:** | This command is only used for ATCRBS intruders. |

### 5.9.4.6 BDS Reply Parameters

Each Mode S intruder (target) can have up to eight (8) BDS registers defined. Position, Identification and Velocity are already available.

#### 5.9.4.6.1 BDS Reply

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:BDS:}<bds numeric>{:MESS \| :MESSAGE} SP<numeric>CR |
| **Description:** | This command sets the BDS reply for the selected intruder. |
| **Numeric:** | bds numeric: 0 to FF (2 hexadecimal ASCII characters). Except the default register numbers (5, 6, 8, 9, 62, and 65). |
| | numeric: 0 to FFFFFFFFFFFFFF (14 hexadecimal ASCII characters) |
| **Example:** | :RGS:SCE:STAT:2:BDS:3:MESS 1234FA2796BCA1\r |

### 5.9.4.7 Broadcast Message Parameters

The following set of commands allows the user to define per intruder (target) if a broadcast message is to be sent and the contents of the message. If a broadcast message is defined, the message is transmitted every ten (10) seconds.

#### 5.9.4.7.1 Interval AQ

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:STAT: | :STATIC: | :DYN: | :DYNAMIC:}<intruder number>{:BRO | :BROADCAST }{:INT: | :INTERVAL:}<interval number>{:AQ}SP{1 | 0}CR</td></tr>
<tr><td>Description:</td><td>This command sets the AQ Bit of the selected broadcast message for the selected intruder.</td></tr>
<tr><td>Default:</td><td>0</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:STAT:2:BRO:INT:2:AQ 1\r</td></tr>
</table>

#### 5.9.4.7.2 Interval Enable

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:STAT: | :STATIC: | :DYN: | :DYNAMIC:}<intruder number>{:BRO | :BROADCAST }{:INT: | :INTERVAL:}<interval number>{:ENA | :ENABLE}SP{ON | OFF}CR</td></tr>
<tr><td>Description:</td><td>This command enables or disables the selected broadcast message for the selected intruder.</td></tr>
<tr><td>Default:</td><td>On</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:STAT:2:BRO:INT:3:ENA ON\r</td></tr>
</table>

#### 5.9.4.7.3 Interval MU

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:STAT: | :STATIC: | :DYN: | :DYNAMIC:}<intruder number>{:BRO | :BROADCAST }{:INT: | :INTERVAL:}<interval number>{:MU}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the MU Field (56 Bits) of the selected broadcast message for the selected intruder.</td></tr>
<tr><td>Numeric:</td><td>0 to FFFFFFFFFFFFFF (14 hexadecimal ASCII characters)</td></tr>
<tr><td>Default:</td><td>32000000 + Intruder Mode S Address</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:STAT:2:BRO:INT:3:MU CBA23552176A10\r</td></tr>
</table>

#### 5.9.4.7.4 Interval Quantity

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:STAT: | :STATIC: | :DYN: | :DYNAMIC:}<intruder number>{:BRO | :BROADCAST}{:NINT | :NINTERVAL}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the number of broadcast message intervals for the selected intruder.</td></tr>
<tr><td>Numeric:</td><td>0 to 10 (decimal ASCII)</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:STAT:2:BRO:NINT 4\r</td></tr>
</table>

##### 5.9.4.7.5 Interval RL

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:BRO \| :BROADCAST }{:INT: \| :INTERVAL:}<interval number>{:RL}SP{1 \| 0}CR |
| **Description:** | This command sets the RL Bit of the selected broadcast message for the selected intruder. |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:STAT:2:BRO:INT:4:RL 1\r |

##### 5.9.4.7.6 Interval Start Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:BRO \| :BROADCAST }{:INT: \| :INTERVAL:}<interval number>{:BEGIN}SP<numeric>CR |
| **Description:** | This command sets the start time for the selected broadcast message for the selected intruder. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) |
| **Default:** | Intruder start time. |
| **Example:** | :RGS:SCE:STAT:2:BRO:INT:4:BEGIN 125\r |

##### 5.9.4.7.7 Interval Stop Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:BRO \| :BROADCAST }{:INT: \| :INTERVAL:}<interval number>{:END}SP<numeric>CR |
| **Description:** | This command sets the stop time for the selected broadcast message for the selected intruder. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) |
| **Default:** | Intruder stop time. |
| **Example:** | :RGS:SCE:STAT:2:BRO:INT:4:END 2125\r |

#### 5.9.4.8 Coordination Message Parameters

The following set of commands allows the user to define per intruder (target) if a coordination message is to be sent and the contents of the message. The user specifies the interval in time to transmit the coordination message, and whether the coordination message is intruder initiated or response to coordination message from the UUT.

##### 5.9.4.8.1 Interval AQ

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:COOR \| :COORDINATION}{:INT: \| :INTERVAL:}<interval number>{:AQ}SP{1 \| 0}CR |
| **Description:** | This command sets the AQ Bit of the selected coordination message for the selected intruder. |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:STAT:2:COOR:INT:2:AQ 1\r |

### 5.9.4.8.2 Interval Enable

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:STAT: | :STATIC: | :DYN: | :DYNAMIC:}<intruder number>{:COOR | :COORDINATION}{:INT: | :INTERVAL:}<interval number>{:ENA | :ENABLE}SP{ON | OFF}CR</td></tr>
<tr><td>Description:</td><td>This command enables or disables the selected coordination message for the selected intruder.</td></tr>
<tr><td>Default:</td><td>On</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:STAT:2:COOR:INT:2:ENA ON\r</td></tr>
</table>

### 5.9.4.8.3 Interval Intruder Initiated

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:STAT: | :STATIC: | :DYN: | :DYNAMIC:}<intruder number>{:COOR | :COORDINATION}{:INT: | :INTERVAL:}<interval number>{:INT | :INTRUDER}SP{YES | NO}CR</td></tr>
<tr><td>Description:</td><td>This command sets the selected coordination message for the selected intruder to be initiated at the specified time if intruder initiated (Yes) or to wait for a coordination message from the UUT at the specified time before transmitting (No).</td></tr>
<tr><td>Default:</td><td>Yes</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:STAT:2:COOR:INT:2:INT YES\r</td></tr>
</table>

### 5.9.4.8.4 Interval MU

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:STAT: | :STATIC: | :DYN: | :DYNAMIC:}<intruder number>{:COOR | :COORDINATION}{:INT: | :INTERVAL:}<interval number>{:MU}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the MU Field (56 Bits) of the selected coordination message for the selected intruder.</td></tr>
<tr><td>Numeric:</td><td>0 to FFFFFFFFFFFFFF (14 hexadecimal ASCII characters)</td></tr>
<tr><td>Default:</td><td>30000000 + Intruder Mode S Address</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:STAT:2:COOR:INT:3:MU BBA12576424A12\r</td></tr>
</table>

### 5.9.4.8.5 Interval Quantity

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:STAT: | :STATIC: | :DYN: | :DYNAMIC:}<intruder number>{:COOR | :COORDINATION}{:NINT | :NINTERVALS}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the number of coordination message intervals for the selected intruder.</td></tr>
<tr><td>Numeric:</td><td>0 to 10 (decimal ASCII)</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:STAT:2:COOR:NINT 5\r</td></tr>
</table>

#### 5.9.4.8.6 Interval RL

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:COOR \| :COORDINATION}{:INT: \| :INTERVAL:}<interval number>{:RL}SP{1 \| 0}CR |
| **Description:** | This command sets the RL Bit of the selected coordination message for the selected intruder. |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:STAT:2:COOR:INT:3:RL 1\r |

#### 5.9.4.8.7 Interval Start Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:COOR \| :COORDINATION}{:INT: \| :INTERVAL:}<interval number>{:BEGIN}SP<numeric>CR |
| **Description:** | This command sets the start time for the selected coordination message for the selected intruder. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) |
| **Default:** | Intruder start time. |
| **Example:** | :RGS:SCE:STAT:2:COOR:INT:3:BEGIN 25\r |

#### 5.9.4.8.8 Interval Stop Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:COOR \| :COORDINATION}{:INT: \| :INTERVAL:}<message number>{:END}SP<numeric>CR |
| **Description:** | This command sets the stop time for the selected coordination message for the selected intruder. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) |
| **Default:** | Intruder end time. |
| **Example:** | :RGS:SCE:STAT:2:COOR:INT:3:END 85\r |

### 5.9.4.9 Coordination Reply Parameters

The following set of commands allows the user to define per intruder (target) if a coordination reply message is to be sent and the contents of the message. The user specifies the interval in time to transmit the coordination reply message.

#### 5.9.4.9.1 Interval Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:RDF16}{:INT: \| :INTERVAL:}<interval number>{:ENA \| :ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the selected DF16 reply message for the selected intruder. |
| **Default:** | On |
| **Example:** | :RGS:SCE:STAT:2:RDF16:INT:3:ENA ON\r |

#### 5.9.4.9.2 Interval MV

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:RDF16}{:INT: \| :INTERVAL:}<interval number>{:MV}SP<numeric>CR |
| **Description:** | This command sets the MV Field (56 Bits) of the selected DF16 reply message for the selected intruder. |
| **Numeric:** | 0 to FFFFFFFFFFFFFF (14 hexadecimal ASCII characters) |
| **Default:** | 30000000000000 |
| **Example:** | :RGS:SCE:STAT:2:RDF16:INT:3:MV 30000000002600\r |

#### 5.9.4.9.3 Interval Quantity

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:RDF16}{:NINT \| :NINTERVAL}SP<numeric>CR |
| **Description:** | This command sets the number of DF16 reply intervals for the selected intruder. |
| **Numeric:** | 0 to 10 (decimal ASCII) |
| **Example:** | :RGS:SCE:DYN:2:RDF16:NINT 4\r |

#### 5.9.4.9.4 Interval Start Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:RDF16}{:INT: \| :INTERVAL:}<interval number>{:BEGIN}SP<numeric>CR |
| **Description:** | This command sets the start time for the selected DF16 reply message for the selected intruder. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) |
| **Default:** | Intruder start time. |
| **Example:** | :RGS:SCE:DYN:2:RDF16:INT:1:BEGIN 0.5\r |

#### 5.9.4.9.5 Interval Stop Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:RDF16}{:INT: \| :INTERVAL:}<interval number>{:END}SP<numeric>CR |
| **Description:** | This command sets the stop time for the selected DF16 reply message for the selected intruder. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) |
| **Default:** | Intruder stop time. |
| **Example:** | :RGS:SCE:DYN:2:RDF16:INT:1:END 3.5\r |

#### 5.9.4.10 Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:ENA \| :ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the specified intruder. |
| **Default:** | On |
| **Example:** | :RGS:SCE:DYN:1:ENA ON\r |

#### 5.9.4.11 Ground Status

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:GRO \| :GROUND}SP{ON \| OFF}CR |
| **Description:** | This command sets the ground status of the intruder. If the intruder is an extended Mode S and ground status is enabled, the surface position squitters are transmitted. |
| **Default:** | Off |
| **Example:** | :RGS:SCE:STAT:1:GRO ON\r |

#### 5.9.4.12 Hybrid Surveillance Parameters

The following set of commands allows the user the capability of setting a delta on the altitude, bearing and range of an intruder active reply compare to the passive squitter altitude, bearing and range.

##### 5.9.4.12.1 Delta Altitude

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:HYBRID}{:DALT \| :DALTITUDE}SP<numeric>CR |
| **Description:** | This command sets the delta altitude for hybrid testing. The passive position squitter is modified from the actual by the delta altitude. |
| **Numeric:** | ±20000 ft. (decimal ASCII) |
| **Default:** | 0 feet |
| **Example:** | :RGS:SCE:DYN:2:HYBRID:DALT +700\r |

##### 5.9.4.12.2 Delta Bearing

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:HYBRID}{:DBEA \| :DBEARING}SP<numeric>CR |
| **Description:** | This command sets the delta bearing for hybrid testing. The passive position squitter is modified from the actual by the delta bearing. |
| **Numeric:** | -60 to 60 degrees (decimal ASCII) |
| **Default:** | 0 degrees |
| **Example:** | :RGS:SCE:DYN:2:HYBRID:DBEA -33\r |

#### 5.9.4.12.3 Delta Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:HYBRID}{:ENABLE \| :ENA}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables hybrid delta altitude, range and bearing. |
| **Default:** | Off |
| **Example:** | :RGS:SCE:DYN:2:HYBRID:ENA ON\r |

#### 5.9.4.12.4 Delta Range

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:HYBRID}{:DRAN \| :DRANGE}SP<numeric>CR |
| **Description:** | This command sets the delta range for hybrid testing. The passive position squitter is modified from the actual by the delta range. |
| **Numeric:** | -12000 to 12000 feet (decimal ASCII) |
| **Default:** | 0 nmi |
| **Example:** | :RGS:SCE:DYN:2:HYBRID:DRAN 1250\r |

### 5.9.4.13 ICAO/Mode A Flag

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:IMF}SP <numeric>CR |
| **Description:** | This command sets the type of identity associated with the aircraft data reported in the TIS-B message. IMF equal to zero indicates the TIS-B data is identified by an ICAO-24 Bit aircraft address. IMF equal to one indicates the TIS-B data is identified by a Mode A Code. |
| **Numeric:** | 0 to 1 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:DYN:2:IMF 1\r |

### 5.9.4.14 Identification Message

This set of commands allows the user to define the Identification Squitter for the specified intruder (target).

#### 5.9.4.14.1 Identification Message Parameters

##### 5.9.4.14.1.1 Emitter Category

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:IDENTEC}SP <numeric>CR |
| **Description:** | This command sets the selected intruder emitter category for the Ident squitter. |
| **Numeric:** | 0 to 7 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:DYN:1:IDENTEC 2\r |

#### 5.9.4.14.1.2 Identification

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:IDENT}SP{<characters>\| BLANK \| NODATA}CR |
| **Description:** | This command sets the selected intruder identification characters for the Ident squitter. The maximum length is eight characters (use the keyword “BLANK” to define all blank characters). |
| **Default:** | Static intruders are STAT001, STAT002, ....<br>Dynamic intruders are DYN01, DYN02,... |
| **Example:** | :RGS:SCE:DYN:1:IDENT INT01\r |

#### 5.9.4.14.1.3 Identification Type

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:IDENTTYPE}SP <numeric>CR |
| **Description:** | This command sets the selected intruder identification type for the Ident squitter. |
| **Numeric:** | 1 to 4 (decimal ASCII) |
| **Default:** | 1 |
| **Example:** | :RGS:SCE:DYN:1:IDENTTYPE 1\r |

### 5.9.4.14.2 Identification Message Schedule

Identification squitter is transmitted by the Unit at a rate of 5.0 seconds.

Dynamic intruders (targets) allow definition of multiple time intervals where the Identification squitter can be enabled or disabled.

Static intruders (targets) allow the user to enable or disable the Identification squitter for the entire scenario.

#### 5.9.4.14.2.1 Dynamic Identification Schedule

##### 5.9.4.14.2.1.1 Interval Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:SIDENT}{:INT: \| :INTERVAL:}<interval number>{:ENA \| :ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the identification squitter message of the specified intruder. |
| **Default:** | On |
| **Example:** | :RGS:SCE:DYN:1:SIDENT:INT:1:ENA ON\r |

#### 5.9.4.14.2.1.2 Interval Quantity

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:SIDENT}{:NINT \| :NINTERVALS}SP<numeric>CR |
| **Description:** | This command sets the number of identification squitter message intervals for the selected intruder. |
| **Numeric:** | 0 to 255 (decimal ASCII) |
| **Default:** | By default, the spaces not defined between intervals are considered off. |
| **Example:** | :RGS:SCE:DYN:1:SIDENT:NINT 4\r |
| **NOTE:** | Only the user can define the intervals where the message is transmitted. |

#### 5.9.4.14.2.1.3 Interval Start Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:SIDENT}{:INT: \| :INTERVAL:}<interval number>{:BEGIN}SP<numeric>CR |
| **Description:** | This command sets the start time for the selected identification squitter message interval for the selected intruder. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) (Resolution 0.1) |
| **Default:** | By default, the spaces not defined between intervals are considered off. |
| **Example:** | :RGS:SCE:DYN:1:SIDENT:INT:2:BEGIN 0.5\r |
| **NOTE:** | Only the user can define the intervals where the message is transmitted. |

#### 5.9.4.14.2.1.4 Interval Stop Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:SIDENT}{:INT: \| :INTERVAL:}<interval number>{:END}SP<numeric>CR |
| **Description:** | This command sets the stop time for the selected identification squitter message interval for the selected intruder. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) (Resolution 0.1) |
| **Default:** | By default, the spaces not defined between intervals are considered off. |
| **Example:** | :RGS:SCE:DYN:1:SIDENT:INT:2:END 70\r |
| **NOTE:** | Only the user can define the intervals where the message is transmitted. |

### 5.9.4.14.2.2 Static Identification Schedule

#### 5.9.4.14.2.2.1 Interval Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruder number>{:SIDENT}{:ENA \| :ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the identification squitter message of the specified intruder. |
| **Default:** | On |
| **Example:** | :RGS:SCE:STAT:1:SIDENT:ENA ON\r |

#### 5.9.4.15 Mode

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:MOD \| :MODE}SP{ATCRBS \| TCAS \| TIS-B \| EXTENDED \| ADS-R}CR |
| **Description:** | This command sets the selected intruder to a specific intruder type. The intruder types are ATCRBS, TCAS (Mode S Only), TIS-B, Mode S Extended or ADS-R. When the intruder type is set to ADS-R, the Control Field (CF) is set with the value 6 automatically. |
| **Default:** | TCAS |
| **Example:** | :RGS:SCE:STAT:2:MOD ADS-R\r |

#### 5.9.4.16 Mode-S All Call Reply (DF=11) Message

DF11 squitter is transmitted by the Unit at a rate of 1.0 second.

Dynamic intruders (targets) allow definition of multiple time intervals where the DF11 squitter can be enabled or disabled.

Static intruders (targets) allow the user to enable or disable the DF11 squitter for the entire scenario.

#### 5.9.4.16.1 Mode-S All Call Reply (DF=11) Message Schedule

##### 5.9.4.16.1.1 Dynamic DF=11 Schedule

###### 5.9.4.16.1.1.1 Interval Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:SDF11}{:INT: \| :INTERVAL:}<interval number>{:ENA \| :ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the DF11 squitter message of the specified intruder. |
| **Default:** | On |
| **Example:** | :RGS:SCE:DYN:1:SDF11:INT:2:ENA ON\r |

###### 5.9.4.16.1.1.2 Interval Quantity

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:SDF11}{:NINT \| :NINTERVALS}SP<numeric>CR |
| **Description:** | This command sets the number of DF11 squitter message intervals for the selected intruder. |
| **Numeric:** | 0 to 255 (decimal ASCII) |
| **Default:** | By default, the spaces not defined between intervals are considered off. |
| **Example:** | :RGS:SCE:DYN:1:SDF11:NINT 4\r |
| **NOTE:** | Only the user can define the intervals where the message is transmitted. |

#### 5.9.4.16.1.1.3 Interval Start Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:SDF11}{:INT: \| :INTERVAL:}<interval number>{:BEGIN}SP<numeric>CR |
| **Description:** | This command sets the start time for the selected DF11 squitter message interval for the selected intruder. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) (Resolution 0.1) |
| **Default:** | By default, the spaces not defined between intervals are considered off. |
| **Example:** | :RGS:SCE:DYN:1:SDF11:INT:2:BEGIN 12.5\r |
| **NOTE:** | Only the user can define the intervals where the message is transmitted. |

#### 5.9.4.16.1.1.4 Interval Stop Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:SDF11}{:INT: \| :INTERVAL:}<interval number>{:END}SP<numeric>CR |
| **Description:** | This command sets the stop time for the selected DF11 squitter message interval for the selected intruder. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) (Resolution 0.1) |
| **Default:** | By default, the spaces not defined between intervals are considered off. |
| **Example:** | :RGS:SCE:DYN:1:SDF11:INT:2:END 40.5\r |
| **NOTE:** | Only the user can define the intervals where the message is transmitted. |

### 5.9.4.16.2 Static DF=11 Schedule

#### 5.9.4.16.2.1 Interval Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruderno>{:SDF11}{:ENA \| :ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the DF11 squitter message of the specified intruder. |
| **Default:** | On |
| **Example:** | :RGS:SCE:STAT:1:SDF11:ENA ON\r |

### 5.9.4.17 Mode S Data Parameters

#### 5.9.4.17.1 Crosslink Capability (CC)

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:CC}SP{ON \| OFF}CR |
| **Description:** | This command either enables or disables crosslink capability Bit for the specified intruder. |
| **Default:** | Off |
| **Example:** | :RGS:SCE:STAT:2:CC ON\r |

### 5.9.4.17.2 Downlink Request (DR)

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:DR}SP<numeric>CR |
| **Description:** | This command sets the DR field for a Mode S intruder. |
| **Numeric:** | 0 to 31 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:STAT:1:DR 22\r |

### 5.9.4.17.3 Flight Status (FS)

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:FS}SP<numeric>CR |
| **Description:** | This command sets the FS field for a Mode S intruder. |
| **Numeric:** | 0 to 7 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:STAT:1:FS 6\r |

### 5.9.4.17.4 Mode S Address

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:MSADDR}SP<numeric>CR |
| **Description:** | This command sets the Mode S address. |
| **Numeric:** | 0 to FFFFFF (hexadecimal ASCII) |
| **Default:** | Static starts at 0x000021<br>Dynamic starts at 0x000001 |
| **Example:** | :RGS:SCE:STAT:1:MSADDR 000024\r |

### 5.9.4.17.5 Sensitivity Level (SL)

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:SL}SP<numeric>CR | |
| **Description:** | This command sets the SL (sensitivity level) field for a Mode S intruder. | |
| **Numeric:** | 0 to 7 (decimal ASCII) | |
| | Value | Sensitivity Level |
| | 0 | No TCAS Sensitivity Level |
| | 1 | Sensitivity Level 1 |
| | 2 | Sensitivity Level 2 |
| | 3 | Sensitivity Level 3 |
| | 4 | Sensitivity Level 4 |
| | 5 | Sensitivity Level 5 |
| | 6 | Sensitivity Level 6 |
| | 7 | Sensitivity Level 7 |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:STAT:1:SL 4\r | |

### 5.9.4.17.6 Reply Information (RI; AQ=0)

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:RI:AQ0}SP<numeric>CR | |
| **Description:** | This command sets the RI field for a Mode S intruder for an AQ=0 reply. | |
| **Numeric:** | 0 to 7 (decimal ASCII) | |
| | Value | RI |
| | 0 | No Onboard TCAS |
| | 1 | Not Assigned |
| | 2 | No Resolution |
| | 3 | Vertical Only Resolution |
| | 4 | Vertical and Horizontal |
| | 5 | Not Assigned |
| | 6 | Not Assigned |
| | 7 | Not Assigned |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:STAT:1:RI:AQ0 4\r | |

### 5.9.4.17.7 Reply Information (RI; AQ=1)

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:RI:AQ1}SP<numeric>CR | |
| **Description:** | This command sets the RI field for a Mode S intruder for an AQ=1 reply. | |
| **Numeric:** | 0 to 7 (decimal ASCII) | |
| | **Value** | **RI** |
| | 0 | No Airspeed |
| | 1 | Airspeed <= 75 knots |
| | 2 | 75 < Airspeed <= 150 knots |
| | 3 | 150 < Airspeed <= 300 knots |
| | 4 | 300 < Airspeed <= 600 knots |
| | 5 | 600 < Airspeed <= 1200 knots |
| | 6 | 1200 knots < Airspeed |
| | 7 | Not Assigned |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:STAT:1:RI:AQ1 5\r | |

### 5.9.4.17.8 Reply Information DF16 (RI)

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:RI:DF16}SP<numeric>CR | |
| **Description:** | This command sets the RI field for an extended Mode S intruder for a DF16 reply. | |
| **Numeric:** | 0 to 15 (decimal ASCII) | |
| | **Value** | **RI** |
| | 0 | No Onboard TCAS |
| | 1 | Not Assigned |
| | 2 | No Resolution |
| | 3 | Vertical Only Resolution |
| | 4 | Vertical and Horizontal |
| | 5 | Not Assigned |
| | 6 | Not Assigned |
| | 7 | Not Assigned |
| | 8 | No Airspeed |
| | 9 | Airspeed <= 75 knots |
| | 10 | 75 < Airspeed <= 150 knots |
| | 11 | 150 < Airspeed <= 300 knots |
| | 12 | 300 < Airspeed <= 600 knots |
| | 13 | 600 < Airspeed <= 1200 knots |
| | 14 | 1200 knots < Airspeed |
| | 15 | Not Assigned |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:STAT:1:RI:DF16 11\r | |

### 5.9.4.17.9 Transponder Capability (CA)

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:CA}SP<numeric>CR |
| **Description:** | This command sets the CA field for a Mode S intruder. |
| **Numeric:** | 0 to 7 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:STAT:1:CA 6\r |

### 5.9.4.17.10 Utility Message (UM)

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:UM}SP<numeric>CR |
| **Description:** | This command sets the UM field for a Mode S intruder. |
| **Numeric:** | 0 to 63 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:STAT:1:UM 36\r |

### 5.9.4.18 One-Shot Data Parameters

The following set of commands allows the user to define a DF or UF message and the interval where to transmit the message.

#### 5.9.4.18.1 DF Message

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:ONE \| :ONESHOT}{:MESS: \| :MESSAGE:}<message number>{:DF}SP<numeric>CR |
| **Description:** | This command sets the DF message for the selected one-shot data. |
| **Numeric:** | Short interrogation 0 to FFFFFFFF (8 hexadecimal ASCII) |
| | Long interrogation 0 to FFFFFFFFFFFFFFFFFFFFFF (22 hexadecimal ASCII) |
| **Default:** | 00000001 |
| **Example:** | :RGS:SCE:STAT:1:ONE:MESS:1:DF  1FECA000\r |

#### 5.9.4.18.2 Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:ONE \| :ONESHOT}{:MESS: \| :MESSAGE:}<message number>{:ENA \| :ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the selected one-shot data message for the selected intruder. |
| **Default:** | On |
| **Example:** | :RGS:SCE:STAT:1:ONE:MESS:1:ENA ON\r |

#### 5.9.4.18.3 Quantity

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:ONE \| :ONESHOT}{:NMESS \| :NMESSAGES}SP<numeric>CR |
| **Description:** | This command sets the number of one-shot data message for the selected intruder. Valid only for Mode S TCAS. |
| **Numeric:** | 0 to 255 (decimal ASCII) |
| **Example:** | :RGS:SCE:STAT:1:ONE:NMESS 4\r |

#### 5.9.4.18.4 Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:ONE \| :ONESHOT}{:MESS: \| :MESSAGE:}<message number>{:TIME}SP<numeric>CR |
| **Description:** | This command sets the time for the selected one-shot data message for the selected intruder. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) |
| **Default:** | Intruder start time. |
| **Example:** | :RGS:SCE:STAT:1:ONE:MESS:2:TIME 33.6\r |

#### 5.9.4.18.5 UF Message

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:ONE \| :ONESHOT}{:MESS: \| :MESSAGE:}<message number>{:UF}SP<numeric>CR |
| **Description:** | This command sets the UF message for the selected one-shot data. |
| **Numeric:** | Short interrogation 0 to FFFFFFFF (8 hexadecimal ASCII) |
| | Long interrogation 0 to FFFFFFFFFFFFFFFFFFFFFF (22 hexadecimal ASCII) |
| **Default:** | 00000001 |
| **Example:** | :RGS:SCE:STAT:1:ONE:MESS:2:UF ABFFC123\r |

### 5.9.4.19 Position Parameters

The following set of commands allows the user to define the intruder (target) initial position and, if the intruder is dynamic, the movement direction of the intruder.

#### 5.9.4.19.1 Altitude

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:ALT \| :ALTITUDE}SP{NODATA \| <numeric>}CR |
| **Description:** | This command sets the selected intruder to the specified altitude.<br>If altitude data is not available, then use the keyword “NODATA.” |
| **Numeric:** | Altitude Binary Mode: -1000 to 50175 feet in 25 feet resolution (decimal ASCII) |
| | Altitude Gilham Mode: -1000 to 126700 feet in 100 feet resolution (decimal ASCII) |
| **Default:** | 1000 feet |
| **Example:** | :RGS:SCE:DYN:1:ALT 10175\r |

#### 5.9.4.19.2 Bearing

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| :DYNAMIC:}<intruder number>{:BEA \| :BEARING}SP<numeric>CR |
| **Description:** | This command sets the selected intruder to the specified bearing from own aircraft. |
| **Numeric:** | 0 to 359 degrees (decimal ASCII) (0 is True North) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:DYN:1:BEA 321\r |
| **NOTE:** | The intruder can be defined either by range and bearing or latitude and longitude. If the intruder is defined using range and bearing, the Unit calculates the latitude and longitude of the intruder. If the intruder is defined using latitude and longitude, the Unit calculates the range and bearing. |

### 5.9.4.19.3 Latitude

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:STAT: | :STATIC: | :DYN: | :DYNAMIC:}<intruder number>{:LAT | :LATITUDE}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the selected intruder to the specified latitude.</td></tr>
<tr><td>Numeric:</td><td>-90 to 90 degrees (double ASCII)</td></tr>
<tr><td>Default:</td><td>Calculated using the range and bearing and the own aircraft position.</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:DYN:1:LAT -87.2335\r</td></tr>
<tr><td>NOTE:</td><td>The intruder can be defined either by range and bearing or latitude and longitude. If the intruder is defined using range and bearing, the Unit calculates the latitude and longitude of the intruder. If the intruder is defined using latitude and longitude, the Unit calculates the range and bearing.</td></tr>
</table>

### 5.9.4.19.4 Longitude

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:STAT: | :STATIC: | :DYN: | :DYNAMIC:}<intruder number>{:LONG | :LONGITUDE}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the selected intruder to the specified longitude.</td></tr>
<tr><td>Numeric:</td><td>-180 to 180 degrees (double ASCII)</td></tr>
<tr><td>Default:</td><td>Calculated using the range and bearing and the own aircraft position.</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:DYN:1:LONG 23.452\r</td></tr>
<tr><td>NOTE:</td><td>The intruder can be defined either by range and bearing or latitude and longitude. If the intruder is defined using range and bearing, the Unit calculates the latitude and longitude of the intruder. If the intruder is defined using latitude and longitude, the Unit calculates the range and bearing.</td></tr>
</table>

### 5.9.4.19.5 Range

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:STAT: | :STATIC: | :DYN: | :DYNAMIC:}<intruder number>{:RAN | :RANGE}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the selected intruder to the specified range from own aircraft.</td></tr>
<tr><td>Numeric:</td><td>0 to 150 nmi (decimal ASCII)</td></tr>
<tr><td>Default:</td><td>0 nmi</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:DYN:1:RAN 33\r</td></tr>
<tr><td>NOTE:</td><td>The intruder can be defined either by range and bearing or latitude and longitude. If the intruder is defined using range and bearing, the Unit calculates the latitude and longitude of the intruder. If the intruder is defined using latitude and longitude, the Unit calculates the range and bearing.</td></tr>
</table>

#### 5.9.4.19.6 Track

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:TRA \| :TRACK}SP<numeric>CR |
| **Description:** | This command sets the selected intruder track angle. |
| **Numeric:** | -180 to 180 degrees (decimal ASCII) |
| | 0 to 360 degrees (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:STAT:1:TRA 230\r |
| **NOTE:** | The track information is only used for the velocity squitter of an extended Mode S when the intruder is a static intruder. |

#### 5.9.4.19.7 Velocity

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:VEL \| :VELOCITY}SP{NODATA \| <numeric>}CR |
| **Description:** | This command sets the selected intruder to the specified velocity. If velocity data is not available, then use the keyword “NODATA.” If velocity data is not available then the E/W velocity, N/S velocity and Ground Speed information is not available. |
| **Numeric:** | 0 to 5782 knots (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:DYN:1:VEL 321\r |
| **NOTE:** | The track information is only used for the velocity squitter of an extended Mode S when the intruder is a static intruder. |

### 5.9.4.20 Position Waypoint Parameters

#### 5.9.4.20.1 Altitude

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:WAY \| :WAYPOINTS}{:POS: \| :POSITION:}<position number>{:ALT \| :ALTITUDE}SP<numeric>CR |
| **Description:** | This command sets the altitude at the selected waypoint for the selected intruder. |
| **Numeric:** | Altitude Binary Mode: -1000 to 50175 feet in 25 feet resolution (decimal ASCII) |
| | Altitude Gilham Mode: -1000 to 126700 feet in 100 feet resolution (decimal ASCII) |
| **Default:** | Intruder Altitude |
| **Example:** | :RGS:SCE:DYN:1:WAY:POS:1:ALT 2000\r |

#### 5.9.4.20.2 Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:WAY \| :WAYPOINTS}{:POS: \| :POSITION:}<position number>{:ENA \| :ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the selected waypoint for the selected intruder. |
| **Default:** | On |
| **Example:** | :RGS:SCE:DYN:1:WAY:POS:1:ENA ON\r |

#### 5.9.4.20.3 Latitude

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:WAY \| :WAYPOINTS}{:POS: \| :POSITION:}<position number>{:LAT \| :LATITUDE}SP<numeric>CR |
| **Description:** | This command sets the latitude at the selected waypoint for the selected intruder. |
| **Numeric:** | -90 to 90 degrees (decimal ASCII) |
| **Default:** | Intruder Latitude |
| **Example:** | :RGS:SCE:DYN:1:WAY:POS:1:LAT 23.697\r |

#### 5.9.4.20.4 Longitude

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:WAY \| :WAYPOINTS}{:POS: \| :POSITION:}<position number>{:LONG \| :LONGITUDE}SP<numeric>CR |
| **Description:** | This command sets the longitude at the selected waypoint for the selected intruder. |
| **Numeric:** | -180 to 180 degrees (decimal ASCII) |
| **Default:** | Intruder Longitude |
| **Example:** | :RGS:SCE:DYN:1:WAY:POS:1:LONG -45.273\r |

### 5.9.4.20.5 Parameter

| | | | | | | |
|---|---|---|---|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:WAY \| :WAYPOINTS}{: POS: \| :POSITION:}< position number >{:PAR: \| :PARAMETER:} SP<parameter>,<selection>CR | | | | | |
| **Description:** | This command sets the selected parameter for the selected waypoint for the selected intruder. | | | | | |
| **Default:** | Reply | | **Mode S** | **Mode C** | **TIS-B** | **Ext** |
| | **<parameter>** | **<selection>** | | | | |
| | REPLY | On \| Off | √ | √ | | √ |
| | SQUITTER | On \| Off | √ | | √ | √ |
| | CC | On \| Off | √ | | | √ |
| | RPLYCH | 1 \| 2 \| 3 | √ | √ | √ | √ |
| | PPRPLY | 0 \| 0.2 \| 0.4 \| 0.6 \| 0.8 \| 1 | √ | | | √ |
| | PPSQ | 0 \| 0.2 \| 0.4 \| 0.6 \| 0.8 \| 1 | √ | | √ | √ |
| | RPLYANT | Bottom \| Top \| Alternating \| Both \| Altitude | √ | | | √ |
| | SQANT | Bottom \| Top \| Both | √ | | √ | √ |
| | RPLYPWR | -20 to -90 | √ | √ | | √ |
| | SQPWR | -20 to -90 | √ | | √ | √ |
| | CA | 0 to 7 | √ | | √ | √ |
| | RIAQ1 | 0 to 7 | √ | | | √ |
| | RIAQ0 | 0 to 7 | √ | | | √ |
| | SL | 0 to 7 | √ | | | √ |
| | TRACK | -180 to 180 or 0 to 360 | √ | √ | √ | √ |
| | VELOCITY | 0 to 2000 | √ | √ | √ | √ |
| | VERTICAL | -32704 to 32704 | √ | √ | √ | √ |
| | ALTRPT | On \| Off | | √ | | |
| | WS1 | 0 to 255 | | √ | | |
| | WS1RPLYANT | Bottom \| Top \| Altitude | | √ | | |
| | WS1RPLYQUAD | FORWARD \| RIGHT \| AFTER \| LEFT \| OMNI \| LOCATION | | √ | | |
| | WS2 | 0 to 255 | | √ | | |
| | WS2RPLYANT | Bottom \| Top \| Altitude | | √ | | |
| **Example:** | :RGS:SCE:DYN:1:WAY:POS:1:PAR SQUITTER,ON\r | | | | | |

### 5.9.4.20.6 Quantity

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:WAY \| :WAYPOINTS}{:NPOS \| :NPOSITIONS}SP<numeric>CR |
| **Description:** | This command sets the number of position waypoints for the selected intruder. |
| **Numeric:** | 0 to 20 (decimal ASCII) |
| **Example:** | :RGS:SCE:DYN:1:WAY:NPOS 5\r |

#### 5.9.4.20.7 At Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:WAY \| :WAYPOINTS}{:POS: \| :POSITION:}<position number>{:BEGIN}SP<numeric>CR |
| **Description:** | This command sets the time at the selected waypoint for the selected intruder. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) |
| **Default:** | Intruder Start Time |
| **Example:** | :RGS:SCE:DYN:1:WAY:POS:2:BEGIN 45\r |

### 5.9.4.21 Reply Parameters

#### 5.9.4.21.1 Antenna

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:RPLYANT}SP{TOP \| BOTTOM \| BOTH \| ALTERNATE \| ALTITUDE}CR |
| **Description:** | This command sets the reply antenna for the intruder. The interrogation must match the reply antenna for an intruder to respond to an interrogation. If Alternate is selected, then the reply antenna is changed every second. This command is not used for ATCRBS intruders. |
| **Default:** | By Altitude |
| **Example:** | :RGS:SCE:DYN:1:RPLYANT BOTH\r |

#### 5.9.4.21.2 Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:REPLY}SP{ON \| OFF}CR |
| **Description:** | This command either enables or disables replies for the specified intruder. |
| **Default:** | On |
| **Example:** | :RGS:SCE:DYN:1:REPLY ON\r |

#### 5.9.4.21.3 Power

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:RPLYPWR}SP<numeric>CR |
| **Description:** | This command sets the power level of the reply message. |
| **Numeric:** | High Power Mode: 1 to -69 dBm (decimal ASCII) |
| | Low Power Mode: -20 to -90 dBm (decimal ASCII) |
| **Default:** | -50 dBm |
| **Example:** | :RGS:SCE:DYN:1:RPLYPWR -40\r |

#### 5.9.4.21.4 Probability Pattern

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:PPRPLY}SP<numeric>CR |
| **Description:** | This command sets the reply probability pattern for a Mode S intruder. |
| **Numeric:** | 0, 0.2, 0.4, 0.6, 0.8, 1 (decimal ASCII) |
| **Default:** | 1 |
| **Example:** | :RGS:SCE:DYN:1:PPRPLY 0.6\r |

### 5.9.4.22 Start Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:BEGIN}SP<numeric>CR |
| **Description:** | This command sets the scenario time when the intruder becomes active. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:DYN:1:BEGIN 0\r |

### 5.9.4.23 Stop Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:END}SP<numeric>CR |
| **Description:** | This command sets the scenario time when the intruder becomes inactive. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) |
| **Default:** | Scenario End Time |
| **Example:** | :RGS:SCE:DYN:1:END 650\r |

### 5.9.4.24 Squitter Parameters

#### 5.9.4.24.1 Antenna

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:SQANT}SP{TOP \| BOTTOM \| BOTH}CR |
| **Description:** | This command sets whether the squitter is transmitted on both antennas simultaneously, top only or bottom only. |
| **Default:** | Both |
| **Example:** | :RGS:SCE:DYN:1:SQANT BOTH\r |

#### 5.9.4.24.2 Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:SQU \| :SQUITTER}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables squitters for the specified intruder. Disabling transmission of squitters means that any definition of the squitter scheduled transmission is ignored, any subsequent definition of a waypoint for enabling transmission of squitters turns active the definition of the squitter scheduled transmission. |
| **Default:** | On |
| **Example:** | :RGS:SCE:DYN:1:SQU ON\r |

#### 5.9.4.24.3 Power

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:SQPWR}SP<numeric>CR |
| **Description:** | This command sets the power level of the squitter messages. |
| **Numeric:** | High Power Mode: 1 to -69 dBm (decimal ASCII) |
| | Low Power Mode: -20 to -90 dBm (decimal ASCII) |
| | UAT |
| | -110 to 5 dBm (decimal ASCII) |
| **Default:** | -50 dBm |
| | -20 dBm (UAT) |
| **Example:** | :RGS:SCE:DYN:1:SQPWR -60\r |

#### 5.9.4.24.4 Probability Pattern

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:PPSQ}SP<numeric>CR |
| **Description:** | This command sets the squitter probability pattern for a Mode S intruder. |
| **Numeric:** | 0, 0.2, 0.4, 0.6, 0.8, 1 (decimal ASCII) |
| **Default:** | 1 |
| **Example:** | :RGS:SCE:DYN:1:PPSQ 0.8\r |

### 5.9.4.25 Surface Position Message Parameters

The following set of commands allows the user to define the surface position information for any intruder (target).

#### 5.9.4.25.1 Movement

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:MOV \| :MOVEMENT}SP{SPEED \| MISC}CR |
| **Description:** | This command sets the type of movement for a ground intruder. |
| **Default:** | Speed |
| **Example:** | :RGS:SCE:DYN:1:MOV SPEED\r |

#### 5.9.4.25.2 Movement Miscellaneous

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:MMISC }SP<numeric>CR | |
| **Description:** | This command sets the selected intruder to the selected miscellaneous movement, if Movement has been set to miscellaneous. | |
| **Numeric:** | For DO-260 and DO-260A: | |
| | 0 to 5 (decimal ASCII) | |
| | **Value** | **Movement** |
| | 0 | No Movement Information |
| | 1 | Aircraft Stopped |
| | 2 | Speed >= 175 kts |
| | 3 | Reserved for Decelerating |
| | 4 | Reserved for Accelerating |
| | 5 | Reserved for Backing-Up |
| | For DO-260B: | |
| | 0 to 6 (decimal ASCII) | |
| | **Value** | **Movement** |
| | 0 | No Movement Information |
| | 1 | Aircraft Stopped |
| | 2 | Ground Speed <= 0.125 kts |
| | 3 | Speed > 175 kts |
| | 4 | Reserved for Decelerating |
| | 5 | Reserved for Accelerating |
| | 6 | Reserved for Backing-Up |
| **Example:** | :RGS:SCE:DYN:1:MMISC 2\r | |

#### 5.9.4.25.3 Speed

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:SPEED}SP<numeric>CR |
| **Description:** | This command sets the selected ground intruder to the specified ground speed, if the Movement has been set for speed. |
| **Numeric:** | 0.125 to 176 knots (decimal ASCII) |
| **Default:** | 0.125 kts |
| **Example:** | :RGS:SCE:DYN:1:SPEED 25\r |
| **NOTE:** | The velocity information is only used for the velocity squitter of an extended Mode S when the intruder is a static intruder. |

#### 5.9.4.25.4 Type Code

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT : \| :STATIC : \| : DYN : \| : DYNAMIC :}<intruder number>{:SURFACETYPE}SP<numeric>CR |
| **Description:** | This command sets the selected intruder surface position squitter to the specified type code, if the intruder is an extended Mode S. |
| **Numeric:** | 0 or 5 to 8 (decimal ASCII) |
| **Default:** | 5 |
| **Example:** | :RGS:SCE:DYN:1:SURFACETYPE 6\r |

### 5.9.4.26 Target State and Status Message

The following set of commands allows the user capability of defining for any intruder the Target State and Status squitter.

#### 5.9.4.26.1 Target State and Status Message Parameters

##### 5.9.4.26.1.1 Altitude Hold Mode

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:STARGET}{:AHM}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder target state and status squitter altitude hold mode field to the specified value, if the intruder is an extended Mode S. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Altitude Hold not Active or Unknown |
| | 1 | Altitude Hold Active |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:STARGET:AHM 1\r | |

##### 5.9.4.26.1.2 Altitude Type

| | | | |
|---|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:STARGET}{:AT}SP<numeric>CR | | |
| **Description:** | This command sets the selected intruder target state and status squitter altitude type field to the specified value, if the intruder is an extended Mode S. | | |
| **Numeric:** | 0 to 1 (decimal ASCII) | | |
| | **Value** | **Meaning: DO-206A** | **Meaning: DO-260B** |
| | 0 | Target Altitude referenced to Pressure Altitude (Flight Level) | Data derived from the MCP/FCU |
| | 1 | Target Altitude referenced to Baro-Corrected Altitude (Mean Sea level) | Data derived from the FMS |
| **Default:** | 0 | | |
| **Example:** | :RGS:SCE:DYN:1:STARGET:AT 1\r | | |

#### 5.9.4.26.1.3 Approach Mode

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:STARGET}{:APP}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder target state and status squitter approach mode field to the specified value, if the intruder is an extended Mode S. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Approach Mode not Active or Unknown |
| | 1 | Approach Mode Active |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:STARGET:APP 1\r | |

#### 5.9.4.26.1.4 Autopilot Engaged

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:STARGET}{:AEG}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder target state and status squitter autopilot engaged field to the specified value, if the intruder is an extended Mode S. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Autopilot Disengaged or Unknown |
| | 1 | Autopilot Engaged |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:STARGET:AEG 0\r | |

#### 5.9.4.26.1.5 Backward Compatibility Flag

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:STARGET}{:BCF}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder target state and status squitter backward compatibility flag field to the specified value, if the intruder is an extended Mode S. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Required value |
| | 1 | Invalid message |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:STARGET:BCF 1\r | |

#### 5.9.4.26.1.6 Barometric Altitude Integrity Code

<table>
<tr><td>Command Syntax:</td><td colspan="2">{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:STAT: | :STATIC: | : DYN: | : DYNAMIC:}<intruder number>{:STARGET}{:NICB}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td colspan="2">This command sets the selected intruder target state and status squitter barometric altitude integrity code field to the specified value, if the intruder is an extended Mode S.</td></tr>
<tr><td>Numeric:</td><td colspan="2">0 to 1 (decimal ASCII)</td></tr>
<tr><td></td><td>Value</td><td>Meaning</td></tr>
<tr><td></td><td>0</td><td>Gilham Altitude Source with no cross-checking</td></tr>
<tr><td></td><td>1</td><td>Cross-Checked Gilham or any other Altitude Source</td></tr>
<tr><td>Default:</td><td colspan="2">0</td></tr>
<tr><td>Example:</td><td colspan="2">:RGS:SCE:DYN:1:STARGET:NICB 1\r</td></tr>
</table>

#### 5.9.4.26.1.7 Barometric Pressure Setting

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:STAT: | :STATIC: | : DYN: | : DYNAMIC:}<intruder number>{:STARGET}{:BPS}SP{NODATA |<numeric>}CR</td></tr>
<tr><td>Description:</td><td>This command sets the selected intruder target state and status squitter barometric pressure setting field to the specified value, if the intruder is an extended Mode S.</td></tr>
<tr><td>Numeric:</td><td>0 to 408 (decimal ASCII)</td></tr>
<tr><td>Default:</td><td>0</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:DYN:1:STARGET:BPS 225\r</td></tr>
</table>

#### 5.9.4.26.1.8 Capability/Mode Codes

<table>
<tr><td>Command Syntax:</td><td colspan="2">{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:STAT: | :STATIC: | : DYN:| : DYNAMIC:}<intruder number>{:STARGET}{:CMC}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td colspan="2">This command sets the selected intruder target state and status squitter capability/mode codes field to the specified value, if the intruder is an extended Mode S.</td></tr>
<tr><td>Numeric:</td><td colspan="2">0 to 3 (decimal ASCII)</td></tr>
<tr><td></td><td>Value</td><td>Meaning</td></tr>
<tr><td></td><td>0</td><td>TCAS Operational / No RA Active</td></tr>
<tr><td></td><td>1</td><td>TCAS Operational / RA Active</td></tr>
<tr><td></td><td>2</td><td>TCAS Not Operational / No RA Active</td></tr>
<tr><td></td><td>3</td><td>TCAS Not Operational / RA Active</td></tr>
<tr><td>Default:</td><td colspan="2">0</td></tr>
<tr><td>Example:</td><td colspan="2">:RGS:SCE:DYN:1:STARGET:CMC 2\r</td></tr>
</table>

### 5.9.4.26.1.9 Emergency/Priority Status

<table>
<tr><td>Command Syntax:</td><td colspan="2">{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:STAT:| :STATIC: | : DYN: | : DYNAMIC:}<intruder number>{:STARGET}{:EPS}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td colspan="2">This command sets the selected intruder target state and status squitter emergency/priority status field to the specified value, if the intruder is an extended Mode S.</td></tr>
<tr><td>Numeric:</td><td colspan="2">0 to 7 (decimal ASCII)</td></tr>
<tr><td></td><td>Value</td><td>Meaning</td></tr>
<tr><td></td><td>0</td><td>No emergency</td></tr>
<tr><td></td><td>1</td><td>General Emergency</td></tr>
<tr><td></td><td>2</td><td>Lifeguard/medical emergency</td></tr>
<tr><td></td><td>3</td><td>Minimum fuel</td></tr>
<tr><td></td><td>4</td><td>No communications</td></tr>
<tr><td></td><td>5</td><td>Unlawful interference</td></tr>
<tr><td></td><td>6</td><td>Downed Aircraft</td></tr>
<tr><td></td><td>7</td><td>Reserved</td></tr>
<tr><td>Default:</td><td colspan="2">0</td></tr>
<tr><td>Example:</td><td colspan="2">:RGS:SCE:DYN:1:STARGET:EPS 3\r</td></tr>
</table>

### 5.9.4.26.1.10 Horizontal Data Available/Source Indicator

<table>
<tr><td>Command Syntax:</td><td colspan="2">{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:STAT: | :STATIC: | : DYN: | : DYNAMIC:}<intruder number>{:STARGET}{:HDASI}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td colspan="2">This command sets the selected intruder target state and status squitter horizontal data available/source indicator field to the specified value, if the intruder is an extended Mode S.</td></tr>
<tr><td>Numeric:</td><td colspan="2">0 to 3 (decimal ASCII)</td></tr>
<tr><td></td><td>Value</td><td>Meaning</td></tr>
<tr><td></td><td>0</td><td>No valid horizontal target state data is available</td></tr>
<tr><td></td><td>1</td><td>Autopilot control panel selected value, such as MCP or FCU</td></tr>
<tr><td></td><td>2</td><td>Maintaining current heading or track angle</td></tr>
<tr><td></td><td>3</td><td>FMS/RNAV system</td></tr>
<tr><td>Default:</td><td>0</td><td></td></tr>
<tr><td>Example:</td><td colspan="2">:RGS:SCE:DYN:1:STARGET:HDASI 2\r</td></tr>
</table>

#### 5.9.4.26.1.11 Horizontal Mode Indicator

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:STARGET}{:HMI}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder target state and status squitter horizontal mode indicator field to the specified value, if the intruder is an extended Mode S. | |
| **Numeric:** | 0 to 3 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Unknown mode |
| | 1 | Acquiring Mode |
| | 2 | Capturing or Maintaining Mode |
| | 3 | Reserved |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:STARGET:HMI 1\r | |

#### 5.9.4.26.1.12 LNAV Mode Engaged

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:STARGET}{:LMG}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder target state and status squitter LNAV mode engaged field to the specified value, if the intruder is an extended Mode S. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | LNAV Mode not Active or Unknown |
| | 1 | LNAV Mode Active |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:STARGET:LMG 1\r | |

#### 5.9.4.26.1.13 MCP/FCU Mode Bits

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:STARGET}{:SMD}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder target state and status squitter status of MCP/FCU mode Bits field to the specified value, if the intruder is an extended Mode S. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | No Mode Information/Invalid |
| | 1 | Valid Mode Information in Bits 80,81,82,84 |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:STARGET:SMD 1\r | |

#### 5.9.4.26.1.14 Navigation Accuracy Category for Position

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:STARGET}{:NACP}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder target state and status squitter navigation accuracy category for position field to the specified value, if the intruder is an extended Mode S. | |
| **Numeric:** | 0 to 15 (decimal ASCII) | |
| | **Value** | **NACP** |
| | 0 | EPU ≥ 10 Nm |
| | 1 | EPU < 10 Nm |
| | 2 | EPU < 4 Nm |
| | 3 | EPU < 2 Nm |
| | 4 | EPU < 1 Nm |
| | 5 | EPU < 0.5 Nm |
| | 6 | EPU < 0.3 Nm |
| | 7 | EPU < 0.1 Nm |
| | 8 | EPU < 0.05 Nm |
| | 9 | EPU < 30 m and VEPU < 45 m |
| | 10 | EPU < 10 m and VEPU < 15 m |
| | 11 | EPU < 3 m and VEPU < 4m |
| | 12 to 15 | Reserved |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:STARGET:NACP 6\r | |

#### 5.9.4.26.1.15 Reserved for ADS-R Flag

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:STARGET}{:ADR}SP<numeric>CR |
| **Description:** | This command sets the selected intruder target state and status squitter reserved for ADS-R flag field to the specified value, if the intruder is an extended Mode S. |
| **Numeric:** | 0 to 1 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:DYN:1:STARGET:ADR 1\r |

### 5.9.4.26.1.16 Selected Heading Status

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:STARGET}{:SHS}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder target state and status squitter selected heading status field to the specified value, if the intruder is an extended Mode S. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Selected Heading Invalid |
| | 1 | Selected Heading Valid |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:STARGET:SHS 1\r | |

### 5.9.4.26.1.17 Source Integrity Level Supplement

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:STARGET}{:SILS}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder target state and status squitter source integrity level supplement field to the specified value, if the intruder is an extended Mode S (DO-260B). | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Probability of exceeding NIC Radius of Containment “per hour” |
| | 1 | Probability of exceeding NIC Radius of Containment “per sample” |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:STARGET:SILS 1\r | |

### 5.9.4.26.1.18 Subtype

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:STARGET}{:SUBTYPE}SP<numeric>CR |
| **Description:** | This command sets the selected intruder target state and status squitter subtype field to the specified value, if the intruder is an extended Mode S (DO-260B). |
| **Numeric:** | 0 to 1 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:DYN:1:STARGET:SUBTYPE 1\r |

#### 5.9.4.26.1.19 Surveillance Integrity Level

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:STARGET}{:SIL}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder target state and status squitter surveillance integrity level field to the specified value, if the intruder is an extended Mode S. | |
| **Numeric:** | 0 to 3 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Unknown |
| | 1 | $1x10^{-3}$ per flight hour |
| | 2 | $1x10^{-5}$ per flight hour |
| | 3 | $1x10^{-7}$ per flight hour |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:STARGET:SIL 1\r | |

#### 5.9.4.26.1.20 Target Altitude Capability

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:STARGET}{:ACAP}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder target state and status squitter target altitude capability flag field to the specified value, if the intruder is an extended Mode S. | |
| **Numeric:** | 0 to 3 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Capability for reporting holding altitude only |
| | 1 | Capability for reporting either holding altitude or autopilot control panel selected altitude |
| | 2 | Capability for reporting either holding altitude, autopilot control panel selected altitude or any FMS/RNAV level-off altitude |
| | 3 | Reserved |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:STARGET:ACAP 2\r | |

#### 5.9.4.26.1.21 Target Altitude/Selected Altitude

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:STARGET}{:TALT}SP{NODATA \|<numeric>}CR |
| **Description:** | This command sets the selected intruder target state and status squitter target altitude or MCP/FMS selected altitude field to the specified value, if the intruder is an extended Mode S. |
| **Numeric:** | -1000 to 100,000 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:DYN:1:STARGET:TALT 15000\r |

#### 5.9.4.26.1.22 Target Heading/Track Indicator

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:STARGET}{:THTI}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder target state and status squitter target heading/track indicator field to the specified value, if the intruder is an extended Mode S. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Target Heading Angle being reported |
| | 1 | Target Track Angle being reported |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:STARGET:THTI 1\r | |

#### 5.9.4.26.1.23 TCAS Operational

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:STARGET}{:TOP}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder target state and status squitter TCAS operational field to the specified value, if the intruder is an extended Mode S. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | Value | Meaning |
| | 0 | TCAS not Operational (RI ≠ 3 or 4) |
| | 1 | Approach Mode Active (RI =3 or 4) |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:STARGET:TOP 1\r | |

#### 5.9.4.26.1.24 Track Heading/Track Angle or Selected Heading

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:STARGET}{:THTA}SP{NODATA \|<numeric>}CR |
| **Description:** | This command sets the selected intruder target state and status squitter track heading or selected heading field to the specified value, if the intruder is an extended Mode S. |
| **Numeric:** | 0 to 360 (decimal ASCII) |
| **Default:** | 0 degrees |
| **Example:** | :RGS:SCE:DYN:1:STARGET:THTA 210\r |

#### 5.9.4.26.1.25 Vertical Data Available/Source Indicator

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:STARGET}{:VDASI}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder target state and status squitter vertical data available or source indicator field to the specified value, if the intruder is an extended Mode S. | |
| **Numeric:** | 0 to 3 (decimal ASCII) | |
| | Value | Vertical Data Available/Source Indicator |
| | 0 | No valid vertical target state data is available |
| | 1 | Autopilot control panel selected |
| | 2 | Holding Altitude |
| | 3 | FMS/RNAV System |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:STARGET:VDASI 2\r | |

#### 5.9.4.26.1.26 Vertical Mode Indicator

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:STARGET}{:VMI}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder target state and status squitter vertical mode indicator field to the specified value, if the intruder is an extended Mode S. | |
| **Numeric:** | 0 to 3 (decimal ASCII) | |
| | Value | Meaning |
| | 0 | Unknown mode |
| | 1 | Acquiring Mode |
| | 2 | Capturing or Maintaining Mode |
| | 3 | Reserved |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:STARGET:VMI 1\r | |

#### 5.9.4.26.1.27 VNAV Mode Engaged

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:STARGET}{:VEG}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder target state and status squitter VNAV mode engaged field to the specified value, if the intruder is an extended Mode S. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | Value | Meaning |
| | 0 | VNAV Mode not Engaged or Unknown |
| | 1 | VNAV Mode Engaged |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:STARGET:VEG 1\r | |

#### 5.9.4.26.2 Target State and Status Message Schedule

Target State and Status squitter is transmitted by the Unit at a rate of 1.0 second.

Dynamic intruders (targets) allow definition of multiple time intervals where the Target State and Status squitter can be enabled or disabled.

Static intruders (targets) allow the user to enable or disable the Target State and Status squitter for the entire scenario.

##### 5.9.4.26.2.1 Dynamic Target State AND Status Schedule

###### 5.9.4.26.2.1.1 Interval Enable

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:DYN: | :DYNAMIC:}<intruder number>{:STARGET}{:INT: | :INTERVAL:}<interval number>{:ENA | :ENABLE}SP{ON | OFF}CR</td></tr>
<tr><td>Description:</td><td>This command enables or disables the target state and status squitter message of the specified intruder.</td></tr>
<tr><td>Default:</td><td>On</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:DYN:1:STARGET:INT:1:ENA ON\r</td></tr>
</table>

###### 5.9.4.26.2.1.2 Interval Quantity

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:DYN: | :DYNAMIC:}<intruder number>{:STARGET}{:NINT | :NINTERVALS}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the number of target state and status squitter message intervals for the selected intruder.</td></tr>
<tr><td>Numeric:</td><td>0 to 255 (decimal ASCII)</td></tr>
<tr><td>Default:</td><td>By default, the spaces not defined between intervals are considered off.</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:DYN:1:STARGET:NINT 3\r</td></tr>
<tr><td>NOTE:</td><td>Only the user can define the intervals where the message is transmitted.</td></tr>
</table>

###### 5.9.4.26.2.1.3 Interval Start Time

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:DYN: | :DYNAMIC:}<intruder number>{:STARGET}{:INT: | :INTERVAL:}<interval number>{:BEGIN}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the start time for the selected target state and status squitter message interval for the selected intruder.</td></tr>
<tr><td>Numeric:</td><td>0 to 6550 seconds (decimal ASCII) (Resolution 0.1)</td></tr>
<tr><td>Default:</td><td>By default, the spaces not defined between intervals are considered off.</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:DYN:1:STARGET:INT:1:BEGIN 0\r</td></tr>
<tr><td>NOTE:</td><td>Only the user can define the intervals where the message is transmitted.</td></tr>
</table>

##### 5.9.4.26.2.1.4 Interval Stop Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:STARGET}{:INT: \| :INTERVAL:}<interval number>{:END}SP<numeric>CR |
| **Description:** | This command sets the stop time for the selected target state and status squitter message interval for the selected intruder. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) (Resolution 0.1) |
| **Default:** | By default, the spaces not defined between intervals are considered off. |
| **Example:** | :RGS:SCE:DYN:1:STARGET:INT:1:END 650\r |
| **NOTE:** | Only the user can define the intervals where the message is transmitted. |

#### 5.9.4.26.2.2 Static Target State and Status Schedule

##### 5.9.4.26.2.2.1 Interval Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruder number>{:STARGET}{:ENA \| :ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the target state and status squitter message of the specified intruder. |
| **Default:** | On |
| **Example:** | :RGS:SCE:STAT:1:STARGET:ENA ON\r |

### 5.9.4.27 Time Waypoint Parameters

The following set of commands allows the user to define for dynamic intruders time waypoints where the intruder changes some specific parameter (for example, the intruder stops squittering).

#### 5.9.4.27.1 Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:WAY \| :WAYPOINTS}{:TIME:}<interval number>{:ENA \| :ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the selected waypoint for the selected intruder. |
| **Default:** | On |
| **Example:** | :RGS:SCE:DYN:1:WAY:TIME:1:ENA ON\r |

### 5.9.4.27.2 Parameter

<table>
<tr><td>Command Syntax:</td><td colspan="6">{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:DYN: | :DYNAMIC:}<intruder number>{:WAY | :WAYPOINTS}{:TIME:}<interval number>{:PAR | :PARAMETER}SP<parameter>,<selection>CR</td></tr>
<tr><td>Description:</td><td colspan="6">This command sets the selected parameter for the selected waypoint for the selected intruder.</td></tr>
<tr><td>Default:</td><td>Reply</td><td></td><td rowspan="2">Mode S</td><td rowspan="2">Mode C</td><td rowspan="2">TIS-B</td><td rowspan="2">Extended</td></tr>
<tr><td></td><td><parameter></td><td><selection></td></tr>
<tr><td></td><td>REPLY</td><td>On | Off</td><td>√</td><td>√</td><td></td><td>√</td></tr>
<tr><td></td><td>SQUITTER</td><td>On | Off</td><td>√</td><td></td><td>√</td><td>√</td></tr>
<tr><td></td><td>CC</td><td>On | Off</td><td>√</td><td></td><td></td><td>√</td></tr>
<tr><td></td><td>RPLYCH</td><td>1 | 2 | 3</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td></td><td>PPRPLY</td><td>0 | 0.2 | 0.4 | 0.6 | 0.8 | 1</td><td>√</td><td></td><td></td><td>√</td></tr>
<tr><td></td><td>PPSQ</td><td>0 | 0.2 | 0.4 | 0.6 | 0.8 | 1</td><td>√</td><td></td><td>√</td><td>√</td></tr>
<tr><td></td><td>RPLYANT</td><td>Bottom | Top | Alternating | Both | Altitude</td><td>√</td><td></td><td></td><td>√</td></tr>
<tr><td></td><td>SQANT</td><td>Bottom | Top | Both</td><td>√</td><td></td><td>√</td><td>√</td></tr>
<tr><td></td><td>RPLYPWR</td><td>-20 to -90</td><td>√</td><td>√</td><td></td><td>√</td></tr>
<tr><td></td><td>SQPWR</td><td>-20 to -90</td><td>√</td><td></td><td>√</td><td>√</td></tr>
<tr><td></td><td>CA</td><td>0 to 7</td><td>√</td><td></td><td>√</td><td>√</td></tr>
<tr><td></td><td>RIAQ1</td><td>0 to 7</td><td>√</td><td></td><td></td><td>√</td></tr>
<tr><td></td><td>RIAQ0</td><td>0 to 7</td><td>√</td><td></td><td></td><td>√</td></tr>
<tr><td></td><td>SL</td><td>0 to 7</td><td>√</td><td></td><td></td><td>√</td></tr>
<tr><td></td><td>TRACK</td><td>-180 to 180 or 0 to 360</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td></td><td>VELOCITY</td><td>0 to 2000</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td></td><td>VERTICAL</td><td>-32704 to 32704</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td></td><td>ALTRPT</td><td>On | Off</td><td></td><td>√</td><td></td><td></td></tr>
<tr><td></td><td>WS1</td><td>0 to 255</td><td>√</td><td></td><td></td><td></td></tr>
<tr><td></td><td>WS1RPLYANT</td><td>Bottom | Top | Altitude</td><td>√</td><td></td><td></td><td></td></tr>
<tr><td></td><td>WS1RPLYQUAD</td><td>FORWARD | RIGHT | AFTER | LEFT | OMNI | LOCATION</td><td>√</td><td></td><td></td><td></td></tr>
<tr><td></td><td>WS2</td><td>0 to 255</td><td>√</td><td></td><td></td><td></td></tr>
<tr><td></td><td>WS2RPLYANT</td><td>Bottom | Top | Altitude</td><td>√</td><td></td><td></td><td></td></tr>
<tr><td></td><td>WS2RPLYQUAD</td><td>FORWARD | RIGHT | AFTER | LEFT | OMNI | LOCATION</td><td>√</td><td></td><td></td><td></td></tr>
<tr><td>Example:</td><td colspan="6">:RGS:SCE:DYN:1:WAY:TIME:1:PAR SQANT,Top\r</td></tr>
</table>

#### 5.9.4.27.3 Quantity

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:WAY \| :WAYPOINTS}{:NTIM \| :NTIMES}SP<numeric>CR |
| **Description:** | This command sets the number of time waypoints for the selected intruder. |
| **Numeric:** | 0 to 20 (decimal ASCII) |
| **Example:** | :RGS:SCE:DYN:1:WAY:NTIM 3\r |

#### 5.9.4.27.4 Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:WAY \| :WAYPOINTS}{:TIME:}<interval number>{:BEGIN}SP<numeric>CR |
| **Description:** | This command sets the time when the selected waypoint for the selected intruder occurs. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) |
| **Default:** | Intruder start time. |
| **Example:** | :RGS:SCE:DYN:1:WAY:TIME:1:BEGIN 0.1\r |

### 5.9.4.28 TIS-B Message Parameters

The following set of commands allows the user to define some parameters specific to a TIS-B intruder.

#### 5.9.4.28.1 Message Type

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:TISB}{:MTYPE}SP{ADS-B \| FINE \| COARSE}CR |
| **Description:** | This command sets the TIS-B message type of the intruder selected. |
| **Default:** | ADSB |
| **Example:** | :RGS:SCE:DYN:1:TISB:MTYPE ADS-B\r |

### 5.9.4.29 TIS-B Coarse Position Message Parameters

#### 5.9.4.29.1 Ground Track Status

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:COARSE}{:GTS}SP<numeric>CR | |
| **Description:** | This command sets the validity of the Ground Track value of the intruder selected. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Not Valid |
| | 1 | Valid |
| **Default:** | 1 | |
| **Example:** | :RGS:SCE:DYN:1:COARSE:GTS 1\r | |

#### 5.9.4.29.2 Service Volume ID

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:COARSE}{:SVID}SP<numeric>CR |
| **Description:** | This command sets the service volume identification of the intruder selected. |
| **Numeric:** | 0 to 15 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:STAT:1:COARSE:SVID 3\r |

### 5.9.4.30 TX Generator

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:RPLYCH}SP{1 \| 2 \| 3}CR | |
| **Description:** | This command sets the selected intruder to reply on the specified generator. | |
| | **Value** | **Generator** |
| | 1 | Gen A |
| | 2 | Gen C |
| | 3 | Gen D |
| **Default:** | 1 (Gen A) | |
| **Example:** | :RGS:SCE:DYN:1:RPLYCH 2\r | |

### 5.9.4.31 Velocity Message

The following set of commands allows the user to define the velocity squitter information for any intruder.

#### 5.9.4.31.1 Velocity Message Parameters

##### 5.9.4.31.1.1 Airspeed Information Available

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:AIRSPEED}SP{NODATA \| <numeric>}CR |
| **Description:** | This command sets the selected intruder to the specified airspeed. If airspeed data is not available, use the keyword “NODATA.” |
| **Numeric:** | 0 to 4088 knots (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:DYN:1:AIRSPEED 336\r |

#### 5.9.4.31.1.2 Airspeed Type

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:VELAT}SP{IAS \| TAS}CR |
| **Description:** | This command sets the selected intruder velocity squitter airspeed type field to the specified value, if the intruder is an extended Mode S and the velocity type is Airspeed and Heading. |
| **Default:** | IAS |
| **Example:** | :RGS:SCE:DYN:1:VELAT TAS\r |

#### 5.9.4.31.1.3 Difference From Barometric Altitude

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:VELDBA}SP<numeric>CR |
| **Description:** | This command sets the selected intruder velocity squitter difference from barometric altitude field to the specified value, if the intruder is an extended Mode S. |
| **Numeric:** | -3150 to 3150 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:DYN:1:VELDBA 17\r |

#### 5.9.4.31.1.4 E/W Velocity Information Available

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:EWV}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the east/west velocity information of the specified intruder.<br>OFF setting means no east/west velocity information available. |
| **Default:** | On |
| **Example:** | :RGS:SCE:DYN:1:EWV ON\r |

#### 5.9.4.31.1.5 GNSS Altitude Source Data Difference Information Available

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:GNSS}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the GNSS altitude source data difference information of the specified intruder.<br>OFF setting means no GNSS altitude source data difference information available. |
| **Default:** | On |
| **Example:** | :RGS:SCE:DYN:1:GNSS ON\r |

#### 5.9.4.31.1.6 IFR Capability Flag

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:VELIFR}SP<numeric>CR |
| **Description:** | This command sets the selected intruder velocity squitter IFR capability flag field to the specified value, if the intruder is an extended Mode S. |
| **Numeric:** | 0 to 1 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:DYN:1:VELIFR 1\r |

#### 5.9.4.31.1.7 Intent Change Flag

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:VELINTENT}SP<numeric>CR |
| **Description:** | This command sets the selected intruder velocity squitter intent change flag field to the specified value, if the intruder is an extended Mode S. |
| **Numeric:** | 0 to 1 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:DYN:1:VELINTENT 1\r |

#### 5.9.4.31.1.8 Navigation Accuracy Category for Position

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:VELNACP}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder velocity squitter navigation accuracy category for position field to the specified value, if the intruder is an extended Mode S. | |
| **Numeric:** | 0 to 15 (decimal ASCII) | |
| | **Value** | **NACP** |
| | 0 | EPU ≥ 10 Nm |
| | 1 | EPU < 10 Nm |
| | 2 | EPU < 4 Nm |
| | 3 | EPU < 2 Nm |
| | 4 | EPU < 1 Nm |
| | 5 | EPU < 0.5 Nm |
| | 6 | EPU < 0.3 Nm |
| | 7 | EPU < 0.1 Nm |
| | 8 | EPU < 0.05 Nm |
| | 9 | EPU < 30 m and VEPU < 45 m |
| | 10 | EPU < 10 m and VEPU < 15 m |
| | 11 | EPU < 3 m and VEPU < 4m |
| | 12 to 15 | Reserved |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:VELNACP 7\r | |

#### 5.9.4.31.1.9 NAC-V

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:VELNACV}SP<numeric>CR |
| **Description:** | This command sets the selected intruder velocity squitter NACv field to the specified value, if the intruder is an extended Mode S. |
| **Numeric:** | 0 to 7 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:DYN:1:VELNACV 3\r |

#### 5.9.4.31.1.10 NIC Supplement-A

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:VELNISA}SP<numeric>CR |
| **Description:** | This command sets the selected intruder velocity squitter NIC Supplement-A field to the specified value. |
| **Numeric:** | 0 to 1 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:DYN:1:VELNISA 1\r |

#### 5.9.4.31.1.11 N/S Velocity Information Available

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:NSV}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the north/south velocity information of the specified intruder.<br>OFF setting means no north/south velocity information available. |
| **Default:** | On |
| **Example:** | :RGS:SCE:DYN:1:NSV ON\r |

#### 5.9.4.31.1.12 Surveillance Integrity Value

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:VELSIL}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder velocity squitter surveillance integrity level field to the specified value. | |
| **Numeric:** | 0 to 3 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Unknown |
| | 1 | 1x10$^{-3}$ per flight hour |
| | 2 | 1x10$^{-5}$ per flight hour |
| | 3 | 1x10$^{-7}$ per flight hour |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:VELSIL 2\r | |

#### 5.9.4.31.1.13 Source Bit for Vertical Rate

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:VELVRS}SP{ BARO \| GEO}CR | |
| **Description:** | This command sets for the selected intruder the source Bit for vertical rate. | |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:VELVRS  BARO\r | |

#### 5.9.4.31.1.14 Status Bit for Heading/Ground Track

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| : DYN: \| : DYNAMIC:}<intruder number>{:HSGS}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder velocity squitter status Bit for heading or ground track field to the specified value, if the intruder is an extended Mode S. (Applies when the velocity type is Airspeed and Heading or in the surface position squitter.) | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| **Default:** | 1 | |
| **Example:** | :RGS:SCE:DYN:1:HSGS 0\r | |

#### 5.9.4.31.1.15 True/Magnetic Heading Type

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:VELHRD}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder velocity squitter true/magnetic heading type field to the specified value. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | True North |
| | 1 | Magnetic North |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:VELHRD 1\r | |

#### 5.9.4.31.1.16 Velocity Type

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:VELTYPE}SP<numeric>CR | |
| **Description:** | This command sets the selected intruder velocity squitter to the specified type, if the intruder is an extended Mode S. | |
| **Numeric:** | 0 to 7 (decimal ASCII) | |
| | **Value** | **Velocity Type** |
| | 0 | Subtype 0 – Reserved |
| | 1 | Ground Speed Normal |
| | 2 | Ground Speed Supersonic |
| | 3 | Airspeed Heading Normal |
| | 4 | Airspeed Heading Supersonic |
| | 5 | Subtype 5 – Reserved |
| | 6 | Subtype 6 – Reserved |
| | 7 | Subtype 7 – Reserved |
| **Default:** | 1 | |
| **Example:** | :RGS:SCE:DYN:1:VELTYPE 3\r | |

#### 5.9.4.31.1.17 Vertical Rate Information Available

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:VRV}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the vertical rate information of the specified intruder.<br>OFF setting means no vertical rate information available. |
| **Default:** | On |
| **Example:** | :RGS:SCE:DYN:1:VRV OFF\r |

#### 5.9.4.31.1.18 Vertical Speed

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:VERT \| :VERTICAL}SP<numeric>CR |
| **Description:** | This command sets the selected intruder vertical speed. |
| **Numeric:** | -32704 to 32704 feet per minute (decimal ASCII) |
| **NOTE:** | The vertical speed information is only used for the velocity squitter of an extended Mode S when the intruder is a static intruder. |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:DYN:1:VERT 100\r |

#### 5.9.4.31.1.19 Vertical Velocity Source/GEO Flag

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number >{: VVSOURCE}SP<numeric>CR | |
| **Description:** | This command sets the Vertical Velocity source or GEO flag of the specified intruder. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Vertical Rate information from Geometric Source |
| | 1 | Vertical Rate information from Barometric Source |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:DYN:1:VVSOURCE 1\r | |

### 5.9.4.32 Velocity Message Schedule

Velocity squitter is transmitted by the Unit at a rate of 0.5 seconds.

Dynamic intruders (targets) allow definition of multiple time intervals where the Velocity squitter can be enabled or disabled.

Static intruders (targets) allow the user to enable or disable the Velocity squitter for the entire scenario.

### 5.9.4.32.1 Dynamic Velocity Schedule

#### 5.9.4.32.1.1 Interval Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:SVEL}{:INT: \| :INTERVAL:}<interval number>{:ENA \| :ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the velocity squitter message of the specified intruder. |
| **Default:** | On |
| **Example:** | :RGS:SCE:DYN:1:SVEL:INT:1:ENA ON\r |

#### 5.9.4.32.1.2 Interval Quantity

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:SVEL}{:NINT \| :NINTERVALS}SP<numeric>CR |
| **Description:** | This command sets the number of velocity squitter message intervals for the selected intruder. |
| **Numeric:** | 0 to 255 (decimal ASCII) |
| **Default:** | By default, the spaces not defined between intervals are considered off. |
| **Example:** | :RGS:SCE:DYN:1:SVEL:NINT 4\r |
| **NOTE:** | Only the user can define the intervals where the message is transmitted. |

#### 5.9.4.32.1.3 Interval Start Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:SVEL}{:INT: \| :INTERVAL:}<interval number>{:BEGIN}SP<numeric>CR |
| **Description:** | This command sets the start time for the selected velocity squitter message interval for the selected intruder. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) (Resolution 0.1) |
| **Default:** | By default, the spaces not defined between intervals are considered off. |
| **Example:** | :RGS:SCE:DYN:1:SVEL:INT:1:BEGIN 0\r |
| **NOTE:** | Only the user can define the intervals where the message is transmitted. |

#### 5.9.4.32.1.4 Interval Stop Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:SVEL}{:INT: \| :INTERVAL:}<interval number>{:END}SP<numeric>CR |
| **Description:** | This command sets the stop time for the selected velocity squitter message interval for the selected intruder. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) (Resolution 0.1) |
| **Default:** | By default, the spaces not defined between intervals are considered off. |
| **Example:** | :RGS:SCE:DYN:1:SVEL:INT:1:END 300\r |
| **NOTE:** | Only the user can define the intervals where the message is transmitted. |

#### 5.9.4.32.2 Static Velocity Schedule Interval Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruder number>{:SVEL}{:ENA \| :ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the velocity squitter message of the specified intruder. |
| **Default:** | On |
| **Example:** | :RGS:SCE:STAT:1:SVEL:ENA ON\r |

### 5.9.4.33 UF0 Interrogation Parameters

The following set of commands allows the user to define UF0 interrogation of the UUT for any intruder.

#### 5.9.4.33.1 Interval AQ

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:UF0}{:INT: \| :INTERVAL:}<interval number>{:AQ}SP{1\| 0}CR |
| **Description:** | This command sets the AQ Bit of the selected UF0 message for the selected intruder. |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:DYN:1:UF0:INT:1:AQ 1\r |

#### 5.9.4.33.2 Interval BDS

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:UF0}{:INT: \| :INTERVAL:}<interval number>{:BDS}SP<numeric>CR |
| **Description:** | This command sets the BDS Field (8 Bits) of the selected UF0 message for the selected intruder. |
| **Numeric:** | 0 to FF (2 hexadecimal ASCII characters) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:DYN:1:UF0:INT:1:BDS 01\r |

#### 5.9.4.33.3 Interval Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:UF0}{:INT: \| :INTERVAL:}<interval number>{:ENA \| :ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the selected UF0 message for the selected intruder. |
| **Default:** | On |
| **Example:** | :RGS:SCE:DYN:1:UF0:INT:1:ENA ON\r |

#### 5.9.4.33.4 Interval Quantity

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:UF0}{:NINT \| :NINTERVAL}SP<numeric>CR |
| **Description:** | This command sets the number of UF0 message intervals for the selected intruder. |
| **Numeric:** | 0 to 10 (decimal ASCII) |
| **Example:** | :RGS:SCE:DYN:1:UF0:NINT 3\r |

#### 5.9.4.33.5 Interval RL

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:UF0}{:INT: \| :INTERVAL:}<interval number>{:RL}SP{1 \|0}CR |
| **Description:** | This command sets the RL Bit of the selected broadcast message for the selected intruder. |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:DYN:1:UF0:INT:1:RL 1\r |

#### 5.9.4.33.6 Interval Start Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:UF0}{:INT: \| :INTERVAL:}<interval number>{:BEGIN}SP<numeric>CR |
| **Description:** | This command sets the start time for the selected UF0 message for the selected intruder. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) |
| **Default:** | Intruder start time. |
| **Example:** | :RGS:SCE:DYN:1:UF0:INT:1:BEGIN 0\r |

#### 5.9.4.33.7 Interval Stop Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:UF0}{:INT: \| :INTERVAL:}<interval number>{:END}SP<numeric>CR |
| **Description:** | This command sets the stop time for the selected UF0 message for the selected intruder. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) |
| **Default:** | Intruder stop time. |
| **Example:** | :RGS:SCE:DYN:1:UF0:INT:1:END 650\r |

### 5.9.5 MODE S PULSE PARAMETERS

The following set of commands allows the user to modify the preamble of the DF replies during a scenario.

#### 5.9.5.1 Preamble Delta Pulse Amplitude

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:PULSE}{:MODES:CH:}{ 1 \| 2 \| 3}{:P1 \| :P2 \| :P3 \| :P4 }{:DAMP}SP{0 \| -1}CR |
| **Description:** | This command sets the delta amplitude of the selected Mode S pulse to either 0 or -1 dB deviation. |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:PULSE:MODES:CH:2:P2:DAMP -1\r |

#### 5.9.5.2 Preamble Delta Pulse Position

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:PULSE}{:MODES:CH:}{ 1 \| 2 \| 3}{:P2 \| :P3 \| :P4 }{:DPOS}SP<numeric>CR |
| **Description:** | This command sets the delta position of the selected Mode S pulse on the selected generator. |
| **Numeric:** | -1000 to 1000 ns in 25 ns steps (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:PULSE:MODES:CH:2:P3:DPOS 25\r |

#### 5.9.5.3 Preamble Delta Pulse Width

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:PULSE}{:MODES:CH:}{ 1 \| 2 \| 3}{:P1 \| :P2 \| :P3 \| :P4 }{:DWIDTH}SP<numeric>CR |
| **Description:** | This command sets the delta width of the selected Mode S pulse on the selected generator. |
| **Numeric:** | -400 to 400 ns in 25 ns steps (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:PULSE:MODES:CH:2:P3:DWIDTH 25\r |

#### 5.9.5.4 Preamble Pulse Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:PULSE}{:MODES:CH:}{ 1 \| 2 \| 3}{:P1 \| :P2 \| :P3 \| :P4 }{:ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables (not visible) the selected Mode S pulse. |
| **Default:** | On |
| **Example:** | :RGS:SCE:PULSE:MODES:CH:3:P3:ENABLE ON\r |

### 5.9.6 SCENARIO PARAMETERS

The following set of commands allows the user to define some scenario parameters before executing the start of scenario.

#### 5.9.6.1 Antenna Configuration

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:ANT \| :ANTENNA}SP{DUAL \| TOP \| BOTTOM}CR |
| **Description:** | This command allows setting the Unit to use dual receivers (top and bottom), top only or bottom only. For example, if the user wants to connect the top antenna of a TCAS under test to the Unit top and the bottom antenna of the TCAS to a real antenna, the user should send this command with top only set. |
| **Default:** | Dual. (Reset command returns antenna configuration to dual.) |
| **Example:** | :RGS:SCE:ANT TOP\r |

#### 5.9.6.2 ATE LINE Synchronization

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:ATE \| :ATELINE}SP{ON \| OFF}CR |
| **Description:** | This command turns on or off the ATE line synchronization. |
| **Default:** | Off. (Reset command turns off ATE synchronization.) |
| **Example:** | :RGS:SCE:ATE ON\r |

### 5.9.6.3 Automatic WS

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:AUTOWS}SP{ON | OFF}CR</td></tr>
<tr><td>Description:</td><td>This command turns on or off the automatic assignment of the whisper shout levels for the ATCRBS intruders.</td></tr>
<tr><td>Default:</td><td>Off.</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:AUTOWS ON\r</td></tr>
</table>

### 5.9.6.4 Channel Grouping

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:CH | :CHANNEL}SP{UATRX1 | UATRX2}CR</td></tr>
<tr><td>Description:</td><td>This command allows grouping by channel commands that are used to define UAT scenario. This command must precede the commands used to define UAT Intruders that will be transmitted by the specified channel. This command will be ignored when defining Intruders for TCAS type scenario. By default, the channel grouping is UATRX1.</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:CH UATRX1\r</td></tr>
</table>

### 5.9.6.5 Compile

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:COMP | :COMPILE}CR</td></tr>
<tr><td>Description:</td><td>This command must be sent before to the Scenario Start command. This command completes the definition of the Mode S Squitters for the intruders declared as Mode S Extended, ADS-R or TIS-B.</td></tr>
<tr><td>Return:</td><td>“*” is returned when the compile function has been completed.</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:COMP\r</td></tr>
</table>

### 5.9.6.6 Coordination Repetition Interval

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:SCE | :SCENARIO}{:COOR | :COORDINATION}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the repetition interval of a coordination interrogation message if a DF16 reply is not received from the TCAS under test.</td></tr>
<tr><td>Numeric:</td><td>1000 to 65000 μs (decimal ASCII)</td></tr>
<tr><td>Default:</td><td>10000 μs (Reset command returns value to 10000 μs).</td></tr>
<tr><td>Example:</td><td>:RGS:SCE:COOR 20000\r</td></tr>
</table>

### 5.9.6.7 Export Data

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:EXPORT \| :EXP}SP<filename>CR |
| **Description:** | This command creates a “SDF” file into the internal storage area with the specified filename. If the command is received during the running of a scenario, the creation of the file finishes when the scenario finishes and all data for the scenario has been processed. If the command is received after the scenario stops, then the file generation process starts and finishes as soon as all the data has been processed; in other words, the command can be sent before or after the completion of the scenario (benefit of sending the command after the scenario has started is that the file generation finishes sooner after the scenario stops). |
| **Return:** | “%" character is returned when the export process is finished. |
| **Example:** | :RGS:SCE:EXP test1\r |

### 5.9.6.8 Own Aircraft Source

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:OWNSOURCE \| :OWN}SP{MANUAL \| 429 \| EXTERNAL \| UUT}CR |
| **Description:** | This command sets the source of the own aircraft parameters. |
| **Default:** | Manual |
| **Example:** | :RGS:SCE:OWN 429\r |

### 5.9.6.9 Fruit

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:FRU \| :FRUIT}SP{ON \| OFF}CR |
| **Description:** | This command turns on or off the ATCRBS fruit. |
| **Default:** | Off (Reset command turns off fruit). |
| **Example:** | :RGS:SCE:FRU ON\r |

### 5.9.6.10 GPS Time Mark

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:GPS}SP{ON \| OFF}CR |
| **Description:** | This command turns on or off scenario sync with the GPS Time Mark. |
| **Default:** | Off |
| **Example:** | :RGS:SCE:GPS ON\r |

### 5.9.6.11 Intruders Quantity

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}{:QUAN \| :QUANTITY}SP<numeric1>[,<numeric2>]CR | |
| **Description:** | This command sets the number of static or dynamic intruders depending on the scenario type selected. | |
| **Numeric:** | 0 to 1500 (decimal ASCII) | |
| | According to the scenario type selected, the numeric fields have the following meaning: | |
| | <numeric1> | Number of static or dynamic targets. |
| | <numeric2> | Ignored static or dynamic targets. |
| | Number of Static Targets | 568 |
| | Number of Dynamic Targets | 32 |
| | **UAT** | |
| | <numeric1> | Number of static or dynamic targets in the UAT RX1 channel. |
| | <numeric2> | Number of static or dynamic targets in the UAT RX2 channel. |
| **Default:** | 1500 | |
| | 32 | |
| **NOTE:** | The field <numeric2> is optional. The absence means zero. | |
| **Example:** | :RGS:SCE:DYN:QUAN 2\r<br>:RGS:SCE:DYN:QUAN 2,1\r | |

### 5.9.6.12 Load

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:LOAD}SP<filename>CR |
| **Description:** | This command loads a CSV scenario file (specified filename) from the internal storage area. |
| **Return:** | "*" is returned upon completion of loading the file. |
| **Example:** | :RGS:SCE:LOAD test.csv\r |

### 5.9.6.13 Mode S Message Capture

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:CAP \| :CAPTURE}SP{ON \| OFF}CR |
| **Description:** | This command turns on or off the capture of Mode S messages. |
| **Default:** | Off |
| **Example:** | :RGS:SCE:CAP ON\r |

### 5.9.6.14 MSO Step

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:MSOSTEP}SP<numeric>]CR |
| **Description:** | This command sets the increment used to define the Message Start Opportunities for each UAT ADS-B message defined. This command requires Unit UAT Hardware. |
| **Numeric:** | 1 to 100 (decimal ASCII) |
| **Example:** | :RGS:SCE:MSOSTEP 3\r |

### 5.9.6.15 Power Mode

| | | | | |
|---|---|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:POW \| :POWER}SP{HI \| LO \| VLO}CR | | | |
| **Description:** | This command sets the scenario for high, low or very low power mode. In high power mode the Unit transmits no UF messages. The very low power mode requires Unit hardware and calibration. | | | |
| | | **High Power** | **Low Power** | **Very Low Power** |
| | **Minimum dBm** | -69 dBm | -90 dBm | -110 dBm |
| | **Maximum dBm** | 1 dBm | -20 dBm | -40 dBm |
| **Default:** | Low Power | | | |
| **Return:** | ”*” is returned if the command is able to complete successfully<br>“?” is returned if a failure occurs | | | |
| **Example:** | :RGS:SCE:POW HI\r | | | |
| **NOTE:** | This command is ignored for the scenario type XPDR and UAT. | | | |

### 5.9.6.16 Reset

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:RES \| :RESET}CR |
| **Description:** | This command resets the Scenario Menu to no active intruder, interrogator (ground station) and video data block. |
| **Example:** | :RGS:SCE:RES\r |

### 5.9.6.17 Run Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:TI \| :TIME}SP<numeric>CR |
| **Description:** | This command sets the total scenario time. |
| **Numeric:** | 1 to 6550 seconds (decimal ASCII) |
| **Default:** | 6550 seconds after power up. After power up, last set time is remembered. |
| **Example:** | :RGS:SCE:TI 651\r |

### 5.9.6.18 Run Time Request

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:TI \| :TIME}?CR |
| **Description:** | This command returns the current scenario run time. |
| **Return Value:** | Decimal value in ASCII in 100 ms resolution. |
| **Example:** | 21.6 |

### 5.9.6.19 Save

| | |
|---:|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:SAVE}SP<filename>CR |
| **Description:** | This command saves the current scenario into the internal storage area with the specified filename. |
| **Example:** | :RGS:SCE:SAVE test.csv\r |

### 5.9.6.20 Scenario Type

| | |
|---:|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:TYPE}SP{TCAS \| XPDR \| UAT \| MULTI}CR |
| **Description:** | This command sets the Unit to interpret the scenario commands as TCAS, XPDR or UAT mode. |
| **Default:** | TCAS |
| **Example:** | :RGS:SCE:TYPE XPDR\r |
| **Query:** | :RGS:SCE:TYPE?\r |
| **Returns:** | XPDR |
| **NOTE:** | This command must precede all commands used to define the scenario.<br>The UAT mode requires Unit UAT Hardware. |

### 5.9.6.21 Scenario UTC Time GPS

| | |
|---:|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:UTCGPS}SP{ON \| OFF}CR |
| **Description:** | This command turns on or off the UTC time from the GPS signal. When the UTC Time GPS is disabled, the UTC time is obtained from the Unit clock. |
| **Default:** | On |
| **Example:** | :RGS:SCE:UTCGPS ON\r |

### 5.9.6.22 Slant Range

| | |
|---:|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:SLA \| :SLANT}SP{ON \| OFF}CR |
| **Description:** | This command sets the Unit to generate targets with actual slant range or horizontal plane range. In slant range mode the altitude difference between the own aircraft and intruder is used for reply delay. |
| **Default:** | Off (Reset command turns off slant range.) |
| **Example:** | :RGS:SCE:SLA ON\r |

### 5.9.6.23 Squitter Spacing

| | |
|---:|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:SPA \| :SPACING}SP<numeric>CR |
| **Description:** | This command sets the spacing between two consecutive squitters. |
| **Numeric:** | 150 to 500 µs (decimal ASCII) |
| | 0 for random squitter spacing. (Valid only for TCAS scenario.) |
| **Default:** | 200 µs |
| **Example:** | :RGS:SCE:SPA 275\r |

### 5.9.6.24 Start

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STA \| :START} CR |
| **Description:** | This command starts a predefined scenario. |
| **Return:** | “*” is returned if the start command was able to be performed.<br>“?” is returned if the scenario was not able to be started. |
| **Example:** | :RGS:SCE:STA\r |

### 5.9.6.25 Static Test Mode

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STEST}SP{ON \| OFF}CR |
| **Description:** | This command turns on or off the Static Test Mode. The Static Test Mode allows running the scenario without taking into account the time duration of the scenario. When the Static Test Mode is enabled, the Mode S static and dynamic intruders maintain the position acquired when the maximum time duration is reached. |
| **Default:** | Off (Reset command turns off this parameter.) |
| **Example:** | :RGS:SCE:STEST ON\r |

### 5.9.6.26 Stop

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:STO \| :STOP}CR |
| **Description:** | This command stops a scenario immediately and does not wait for scenario time to expire. |
| **Example:** | :RGS:SCE:STO\r |

### 5.9.6.27 Sweep Mode

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:SWEEP}SP{ON \| OFF}CR |
| **Description:** | This command turns on or off the sweeping UAT mode. |
| **Default:** | Off |
| **Example:** | :RGS:SCE:SWEEP ON\r |
| **NOTE:** | This command is valid only for UAT scenario type. |

### 5.9.6.28 Sweep Step

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:SWEEP}{:STEP}SP<numeric>CR |
| **Description:** | This command specifies the sweep step. |
| **Numeric:** | 1 to 200 ms (decimal ASCII) |
| **Default:** | 1 ms |
| **Example:** | :RGS:SCE:SWEEP:STEP 2\r |
| **NOTE:** | This command is valid only for UAT scenario type. |

### 5.9.6.29 Sweep Interval

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:SWEEP}{:INTERVAL}SP<numeric>CR |
| **Description:** | This command specifies the sweep interval. |
| **Numeric:** | 194 to 994 ms (decimal ASCII) |
| **Default:** | 194 ms |
| **Example:** | :RGS:SCE:SWEEP:INTERVAL 201\r |
| **NOTE:** | This command is valid only for UAT scenario type. |

### 5.9.6.30 UAT Test Mode Doppler Frequency

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:UAT}{:STEST}{:DOPPLER}SP<numeric>CR |
| **Description:** | This command sets the carrier frequency for the Doppler Test. This command is valid only for UAT scenario. |
| **Numeric:** | 1.335 to 85.45 kHz (decimal ASCII) |
| **Default:** | 20.0 kHz |
| **Example:** | :RGS:SCE:UAT:STEST:DOPPLER 10.0\r |

### 5.9.6.31 UAT Test Mode Doppler Shift

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:UAT}{:STEST}{:DSHIFT}SP{PLUS \| + \| MINUS \| -}CR |
| **Description:** | This command sets the shift for the Doppler Test. |
| **Default:** | PLUS |
| **Example:** | :RGS:SCE:UAT:STEST:DSHIFT PLUS\r |
| **NOTE:** | This command is valid only for UAT scenario type. |

### 5.9.6.32 UAT Test Mode Frequency

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:UAT}{:STEST}{:FREQUENCY \| :FREQ}SP<numeric>CR |
| **Description:** | This command sets the frequency for the UAT Test Mode Selected. |
| **Numeric:** | 952 to 1223 MHz (decimal ASCII). |
| **Default:** | 978.0 MHz |
| **Example:** | :RGS:SCE:UAT:STEST:FREQ 980.0\r |
| **NOTE:** | This command is valid only for UAT scenario.<br>This command is valid for the UAT Test Mode (DME Fruit 12 µs spacing and DME Fruit 30 µs spacing). |

### 5.9.6.33 UAT Test Mode Horizontal Spacing

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:UAT}{:STEST}{:HSPACING \| :HSP}SP<numeric>CR |
| **Description:** | This command sets the horizontal spacing for the UAT test Mode Selected in 10 ns steps. |
| **Numeric:** | 600 to 960 ns (decimal ASCII). |
| **Default:** | 960. |
| **Example:** | :RGS:SCE:UAT:STEST:HSP 601\r |
| **NOTE:** | This command is valid only for UAT scenario.<br>This command is valid for the UAT Test Mode (Modulation Frequency and Doppler Modulation Frequency). |

### 5.9.6.34 UAT Test Mode I/Q FILTER MAGNITUDE

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:UAT}{:STEST}{:IQFILTER \| :IQF}SP<numeric>CR |
| **Description:** | This command sets I/Q filter magnitude for the UAT test Mode Selected. This command is valid only for UAT scenarios. This command is valid for the UAT Test Mode (Modulation Frequency and Doppler Modulation Frequency). |
| **Numeric:** | 0 to 3 (decimal ASCII). |
| **Default:** | 0 (No Filter) |
| **Example:** | :RGS:SCE:UAT:STEST:IQF 2\r |

### 5.9.6.35 UAT Test Mode Modulation Frequency

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:UAT}{:STEST}{:MODULATION \| :MOD}SP<numeric>CR |
| **Description:** | This command sets the modulation frequency for the UAT test Mode Selected. |
| **Numeric:** | 156.25 to 683.59 kHz (decimal ASCII). |
| **Default:** | 312.5 kHz |
| **Example:** | :RGS:SCE:UAT:STEST:MOD 313.5\r |
| **NOTE:** | This command is valid only for UAT scenario.<br>This command is valid for the UAT Test Mode (Modulation Frequency and Doppler Modulation Frequency). |

### 5.9.6.36 UAT Test Mode Pulse Power

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:UAT}{:STEST}{:POWER \| :POW}SP<numeric>CR |
| **Description:** | This command sets the power level for the UAT test Mode Selected. |
| **Numeric:** | 1 to -98 dBm (decimal ASCII) |
| **Default:** | -20 dBm |
| **Example:** | :RGS:SCE:UAT:STEST:POW -22\r |
| **NOTE:** | This command is valid only for UAT scenario.<br>This command is valid for the UAT Test Mode (DME Fruit 12 μs spacing, 1090 Pulse Interference and DME Fruit 30 μs spacing). |

### 5.9.6.37 UAT Test Mode Type

| | | |
|---|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:UAT}{:STEST}{:TYPE}SP<numeric>CR | |
| **Description:** | This command specifies the UAT test mode type. This command is valid only for UAT scenario. | |
| **Numeric:** | 1 to 13 (decimal ASCII) | |
| | **Value** | **Test Mode Type** |
| | 1 | Normal |
| | 2 | Overlapping |
| | 3 | DME Fruit 12 µs spacing |
| | 4 | Retrigger Long ADS-B Message |
| | 5 | Retrigger Long Ground Link Message |
| | 6 | 1090 Pulse Interference |
| | 7 | Ground Link Message Invalid MSO |
| | 8 | Airborne Message Invalid MSO |
| | 9 | Doppler Test |
| | 10 | Modulation Frequency |
| | 11 | DME Fruit 30 µs spacing |
| | 12 | Doppler and Modulation Frequency |
| | 13 | Receiver Selectivity |
| **Default:** | 1 (Normal) | |
| **Example:** | :RGS:SCE:UAT:STEST:TYPE 3\r | |

### 5.9.6.38 UAT Test Mode Pulse Width

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:UAT}{:STEST}{:WIDTH \| :WID}SP<numeric>CR |
| **Description:** | This command sets the power width for the UAT test Mode Selected. This command is valid only for UAT scenario. This command is valid for the 1090 Pulse Interference UAT test mode. |
| **Numeric:** | 0 to 50 µs (decimal ASCII) |
| **Example:** | :RGS:SCE:UAT:STEST:WID 5\r |

### 5.9.6.39 Waypoint Mode

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:WAY \| :WAYPOINTS}{:MODE}SP{TIME \| POSITION \| FORCED}CR |
| **Description:** | This command allows setting the waypoints to be defined either by time intervals or actual realistic position (latitude/longitude) or actual no realistic position (forced trajectory). |
| **Default:** | Time (Reset command returns selection to time.) |
| **Example:** | :RGS:SCE:WAY:MODE TIME\r |

### 5.9.7 UAT ADS-B DEFINITION PARAMETERS

The following set of commands allows the user to define ADS-B (airborne) UAT intruder.

#### 5.9.7.1 Address Qualifier

| | | |
|---|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:} <intruder number>{: ADDRQ}SP<numeric>CR | |
| **Description:** | This command sets the address qualifier of the specified intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. | |
| **Numeric:** | 0 to 7 (decimal ASCII) | |
| | **Value** | **Address Type** |
| | 0 | ADS-B target with ICAO 24 Bit address |
| | 1 | ADS-B target with self-assigned temporary address |
| | 2 | TIS-B or ADS-R target with ICAO 24 Bit address |
| | 3 | TIS-B target with track file identifier |
| | 4 | Surface Vehicle |
| | 5 | Fixed ADS-B Beacon |
| | 6 | ADS-R target with non-ICAO address |
| | 7 | Reserved |
| **Example:** | :RGS:SCE:STAT:1:ADDRQ 2\r | |

### 5.9.7.2 Aircraft Size

| | | |
|---|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:} <intruder number>{: AVSIZE}SP<numeric>CR | |
| **Description:** | This command sets the A/V size of the specified intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. | |
| **Numeric:** | 0 to 15 (decimal ASCII) | |
| | **Value** | **Meaning (Length meters/Width meters)** |
| | 0 | No Data |
| | 1 | 15/23 |
| | 2 | 25/28.5 |
| | 3 | 25/34 |
| | 4 | 35/33 |
| | 5 | 35/38 |
| | 6 | 45/39.5 |
| | 7 | 45/45 |
| | 8 | 55/45 |
| | 9 | 55/52 |
| | 10 | 65/59.5 |
| | 11 | 65/67 |
| | 12 | 75/72.5 |
| | 13 | 75/80 |
| | 14 | 85/80 |
| | 15 | 85/90 |
| **NOTE:** | This command is valid only for intruders with AG state grounded. | |
| **Example:** | :RGS:SCE:STAT:1: AVSIZE 4\r | |

### 5.9.7.3 Air/Ground State

| | | |
|---|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:} <intruder number>{:AGSTATE}SP<numeric>CR | |
| **Description:** | This command sets the AG state of the specified intruder.<br>The <intruder number> specifies the number of the intruder in the channel grouping specified. | |
| **Numeric:** | 0 to 3 (decimal ASCII) | |
| | **Value** | **State** |
| | 0 | Subsonic |
| | 1 | Supersonic |
| | 2 | Grounded |
| | 3 | Reserved |
| **Example:** | :RGS:SCE:STAT:1:AGSTATE 2\r | |

#### 5.9.7.4 Altitude Type

| | | |
|---|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:} <intruder number>{: ALTTYPE}SP<numeric>CR | |
| **Description:** | This command sets the altitude type of the specified intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Altitude Type** |
| | 0 | Pressure Altitude |
| | 1 | Geometric Altitude |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:STAT:1:ALTTYPE 1\r | |

#### 5.9.7.5 Lateral Axis GPS Antenna Offset

| | | |
|---|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:} <intruder number>{:UAT}{: GPSLAT}SP<numeric>CR | |
| **Description:** | This command sets the lateral axis GPS antenna offset of the specified intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. | |
| **Numeric:** | 0 to 7 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | No Data |
| | 1 | 2 meters Left |
| | 2 | 4 meters Left |
| | 3 | 6 meters Left |
| | 4 | 0 meters |
| | 5 | 2 meters Right |
| | 6 | 4 meters Right |
| | 7 | 6 meters Right |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:STAT:1:UAT:GPSLAT 3\r | |

### 5.9.7.6 Longitudinal Axis GPS Antenna Offset

| | | |
|---|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:} <intruder number>{:UAT}{: GPSLONG}SP<numeric>CR | |
| **Description:** | This command sets the longitudinal axis GPS antenna offset of the specified intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. | |
| **Numeric:** | 0 to 31 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | No Data |
| | 1 | Applied by sensor |
| | 2 | 2 meters |
| | 3 | 4 meters |
| | 4 to 31 | 6 to 60 meters |
| **Default:** | 0 | |
| **Example:** | :RGS:SCE:STAT:1:UAT:GPSLONG 1\r | |

### 5.9.7.7 MSO

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:} <intruder number>{: MSO}SP<numeric>CR |
| **Description:** | This command sets the MSO of the specified intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Numeric:** | 0 to 3951 (decimal ASCII) |
| **Example:** | :RGS:SCE:STAT:1:MSO 3\r |

### 5.9.7.8 Navigation Integrity Category

| | | |
|---|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:} <intruder number>{: NIC}SP<numeric>CR | |
| **Description:** | This command sets the NIC of the specified intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. | |
| **Numeric:** | 0 to 15 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Rc Unknown |
| | 1 | Rc <20 NM |
| | 2 | Rc <8 NM |
| | 3 | Rc <4 NM |
| | 4 | Rc <2 NM |
| | 5 | Rc <1 NM |
| | 6 | Rc <0.6 NM |
| | 7 | Rc <0.2 NM |
| | 8 | Rc <0.1 NM |
| | 9 | Rc < 75 m |
| | 10 | Rc <25 m |
| | 11 | Rc <7.5 m |
| | 12 | Reserved (NIC=12) |
| | 13 | Reserved (NIC=13) |
| | 14 | Reserved (NIC=14) |
| | 15 | Reserved (NIC=15) |
| **Example:** | :RGS:SCE:STAT:1:NIC 4\r | |

### 5.9.7.9 Offset

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:} <intruder number>{: OFFSET}SP<numeric>CR |
| **Description:** | This command sets the offset or delay of the specified intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Numeric:** | 0 to 65500 (decimal ASCII) |
| **Example:** | :RGS:SCE:STAT:1:OFFSET 7\r |

### 5.9.7.10 Offset Manual Override

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:} <intruder number>{:OFFMANUAL}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the manual override of the offset for the specified intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Example:** | :RGS:SCE:STAT:1:OFFMANUAL ON\r |

### 5.9.7.11 Track Angle/Heading Type

| | | |
|---|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{: TAH}SP<numeric>CR | |
| **Description:** | This command sets the track and heading type of the specified intruder. This command is valid only for intruders with AG state grounded. The <intruder number> specifies the number of the intruder in the channel grouping specified. | |
| **Numeric:** | 0 to 3 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | No Data |
| | 1 | True Track |
| | 2 | Magnetic Heading |
| | 3 | True Heading |
| **Example:** | :RGS:SCE:STAT:1:TAH 0\r | |

### 5.9.7.12 Vertical Velocity Source

| | | |
|---|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{: VVSOURCE}SP<numeric>CR | |
| **Description:** | This command sets the VV source of the specified intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Vertical Rate information from Geometric Source |
| | 1 | Vertical Rate information from Barometric Source |
| **Example:** | :RGS:SCE:STAT:1:VVSOURCE 1\r | |

### 5.9.7.13 Uplink Feedback

| | | |
|---|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{: UPLINK}SP<numeric>CR | |
| **Description:** | This command sets the uplink feedback encoding of the specified intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. | |
| **Numeric:** | 0 to 7 (decimal ASCII) | |
| | **Value** | **Score** |
| | 0 | 0 |
| | 1 | 1 to 13 |
| | 2 | 14 to 21 |
| | 3 | 22 to 25 |
| | 4 | 26 to 28 |
| | 5 | 29 to 30 |
| | 6 | 31 |
| | 7 | 32 |
| **Example:** | :RGS:SCE:STAT:1:UPLINK 2\r | |

### 5.9.7.14 UTC Coupled Condition

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:UTC}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the UTC coupled condition of the specified intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Example:** | :RGS:SCE:STAT:1:UTC ON\r |

### 5.9.7.15 UAT Dynamic ADS-B Payloads

#### 5.9.7.15.1 GPS Antenna AXIS

| | | |
|---|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:UAT}{:ADSB:}<message number>{: GPSAXIS}SP<numeric>CR | |
| **Description:** | This command sets the GPS antenna axis of the ADS-B message of the specified intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Lateral Axis |
| | 1 | Longitudinal Axis |
| **Example:** | :RGS:SCE:DYN:1:UAT:ADSB:1:GPSAXIS 1\r | |

#### 5.9.7.15.2 Quantity

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:UAT}{:NADSB}SP<numeric>CR |
| **Description:** | This command sets the number of ADS-B messages for the selected intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Numeric:** | 0 to 255 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:DYN:1:UAT:NADSB 3\r |

#### 5.9.7.15.3 Payload Type Code

| | | |
|---|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:UAT}{:ADSB:}<message number>{: PLCODE}SP<numeric>CR | |
| **Description:** | This command sets the payload type code of the ADS-B message of the specified intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. | |
| **Numeric:** | 0 to 10 (decimal ASCII) | |
| | **Value** | **Type Code** |
| | 0 | ADS-B Message Payload Type Code 0 |
| | 1 | ADS-B Message Payload Type Code 1 |
| | 2 | ADS-B Message Payload Type Code 2 |
| | 3 | ADS-B Message Payload Type Code 3 |
| | 4 | ADS-B Message Payload Type Code 4 |
| | 5 | ADS-B Message Payload Type Code 5 |
| | 6 | ADS-B Message Payload Type Code 6 |
| | 7 | ADS-B Message Payload Type Code 7 |
| | 8 | ADS-B Message Payload Type Code 8 |
| | 9 | ADS-B Message Payload Type Code 9 |
| | 10 | ADS-B Message Payload Type Code 10 |
| **Example:** | :RGS:SCE:DYN:1:UAT:ADSB:1: PLCODE 10\r | |

#### 5.9.7.15.4 Auxiliary State Vector Payload Message Element

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:UAT}{:ADSB:}<message number>{: PLASV}SP<numeric>CR |
| **Description:** | This command sets the auxiliary state vector payload message element of the ADS-B message of the specified intruder. This command applies to ADS-B Messages with payload type code of ‘1’, ‘2’, ‘5’ and ‘6.’ The data message is padded on the right with zeros for a length 10 hexadecimal ASCII. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Numeric:** | 0 to FFFFFFFFFF (10 hexadecimal ASCII) |
| **Example:** | :RGS:SCE:DYN:1:UAT:ADSB:2:PLASV ABC0000001\r |

### 5.9.7.15.5 Mode Status Payload Message Element

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:UAT}{:ADSB:}<message number>{: PLMS}SP<numeric>CR |
| **Description:** | This command sets the Mode Status payload message element of the ADS-B message of the specified intruder. This command applies to ADS-B Messages with payload type code of ‘1’ and ‘3.’ The data message is padded on the right with zeros for a length 24 hexadecimal ASCII. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Numeric:** | 0 to FFFFFFFFFFFFFFFFFFFFFFFF (24 hexadecimal ASCII) |
| **Example:** | :RGS:SCE:DYN:1:UAT:ADSB:5:PLMS 055000000000000000000010\r |

### 5.9.7.15.6 Target State Payload Message Element

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:UAT}{:ADSB:}<message number>{: PLTS}SP<numeric>CR |
| **Description:** | This command sets the intruder state payload message element of the ADS-B message of the specified intruder. This command applies to ADS-B Messages with payload type code of ‘3’, ‘4’ and ‘5.6.’ The data message is padded on the right with zeros for a length 10 hexadecimal ASCII. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Numeric:** | 0 to FFFFFFFFFF (10 hexadecimal ASCII) |
| **Example:** | :RGS:SCE:DYN:1:UAT:ADSB:7:PLTS 0000000055\r |

### 5.9.7.15.7 Payload Message Schedule Interval Enable

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:UAT}{:ADSB:}<message number>{:INT: \| :INTERVAL:}<interval number>{:ENA \| :ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the selected ADS-B payload message interval for the selected intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Example:** | :RGS:SCE:DYN:1:UAT:ADSB:6:INT:2:ENA ON\r |

### 5.9.7.15.8 Payload Message Schedule Interval Power

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:UAT}{:ADSB:}<message number>{:INT: \| :INTERVAL:}<interval number>{: PWR }SP<numeric>CR |
| **Description:** | This command sets the power level of the ADS-B payload message interval for the selected intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Numeric:** | -110 to 5 dBm (decimal ASCII) |
| **Example:** | :RGS:SCE:DYN:1:UAT:ADSB:3:INT:4:PWR -33\r |

#### 5.9.7.15.9 Payload Message Schedule Interval Quantity

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:UAT}{:ADSB:}<message number>{:NINT \| :NINTERVALS}SP<numeric>CR |
| **Description:** | This command sets the number of ADS-B payload message intervals for the selected intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Numeric:** | 0 to 255 (decimal ASCII) |
| **Example:** | :RGS:SCE:DYN:1:UAT:ADSB:3:NINT 6\r |

#### 5.9.7.15.10 Payload Message Schedule Interval Start Time

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:UAT}{:ADSB:}<message number>{:INT: \| :INTERVAL:}<interval number>{:BEGIN}SP<numeric>CR |
| **Description:** | This command sets the start time for the selected ADS-B payload message interval for the selected intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII). Resolution is 0.1 seconds. |
| **Example:** | :RGS:SCE:DYN:1:UAT:ADSB:3:INT:4:BEGIN 35\r |

#### 5.9.7.15.11 Payload Message Schedule Interval Stop Time

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:DYN: \| :DYNAMIC:}<intruder number>{:UAT}{:ADSB:}<message number>{:INT: \| :INTERVAL:}<interval number>{:END}SP<numeric>CR |
| **Description:** | This command sets the stop time for the selected ADS-B payload message interval for the selected intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII). Resolution is 0.1 seconds. |
| **Example:** | :RGS:SCE:DYN:1:UAT:ADSB:3:INT:4:END 88\r |

### 5.9.7.16 UAT Static ADS-B Payload

#### 5.9.7.16.1 Payload GPS Antenna AXIS

| | | |
|---|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruder number>{:UAT}{: GPSAXIS}SP<numeric>CR | |
| **Description:** | This command sets the GPS antenna axis of the ADS-B message of the specified intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. | |
| **Numeric:** | 0 to 1 (decimal ASCII) | |
| | **Value** | **Meaning** |
| | 0 | Lateral Axis |
| | 1 | Longitudinal Axis |
| **Example:** | :RGS:SCE:STAT:1:UAT:GPSAXIS 1\r | |

### 5.9.7.16.2 Payload Type Code

| | | |
|---|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruder number>{: PLCODE}SP<numeric>CR | |
| **Description:** | This command sets the payload type code of the specified intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. | |
| **Numeric:** | 0 to 14 (decimal ASCII) | |
| | **Value** | **Type Code** |
| | 0 | ADS-B Message Payload Type Code 0 |
| | 1 | ADS-B Message Payload Type Code 1 |
| | 2 | ADS-B Message Payload Type Code 2 |
| | 3 | ADS-B Message Payload Type Code 3 |
| | 4 | ADS-B Message Payload Type Code 4 |
| | 5 | ADS-B Message Payload Type Code 5 |
| | 6 | ADS-B Message Payload Type Code 6 |
| | 7 | ADS-B Message Payload Type Code 7 |
| | 8 | ADS-B Message Payload Type Code 8 |
| | 9 | ADS-B Message Payload Type Code 9 |
| | 10 | ADS-B Message Payload Type Code 10 |
| | 11 | Basic ADS-B Message |
| | 12 | Long ADS-B Message |
| | 13 | Ground Uplink Message |
| | 14 | Ground Uplink Matrix Message |
| **Example:** | :RGS:SCE:STAT:1:PLCODE 4\r | |

#### 5.9.7.16.3 Basic/Long ADS-B Message Data

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruder number>{: PLMSG}SP<numeric>CR |
| **Description:** | This command sets the basic or long data message of the specified intruder.<br>This command is valid only for Payload Type Code 11 (Basic ADS-B) and 12 (Long ADS-B). The data message is padded on the right with zeros for a length according to the payload type code code (36 hexadecimal ASCII for Basic ADS-B and 68 hexadecimal ASCII for Long ADS-B).<br>This command always recalculates the FEC parity when setting the ADS-B basic or long data message. The <intruder number> specifies the number of the intruder in the channel grouping specified.<br>This command is valid to define the ADS-B message data used in the UAT Special Test Mode (Retrigger Long ADS-B Message). The data message is padded on the right with zeros for a length according to the data set size identified by excess (for instance, if length ϵ [96, 128] then length = 128). According with the length of the ADS-B message data will be calculated for the data set size. |
| **Numeric:** | Basic ADS-B: 0 to FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF (36 hexadecimal ASCII) |
| | Long ADS-B: |
| | 0 to FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF (68 hexadecimal ASCII) |
| | Retrigger Long ADS-B Message (214 hexadecimal ASCII) |
| **Example:** | :RGS:SCE:STAT:1:PLMSG 1000000550001000000021\r |

#### 5.9.7.16.4 Basic/Long ADS-B Message FEC Parity

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruder number>{: PLFEC}SP<numeric>CR |
| **Description:** | This command sets the FEC parity of the specified intruder. This command applies to ADS-B Messages with payload type code ‘11’ (Basic ADS-B) and ‘12’ (Long ADS-B). The data message is padded on the right with zeros for a length according to the payload type code (24 hexadecimal ASCII for Basic ADS-B and 28 hexadecimal ASCII for Long ADS-B). The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Numeric:** | Basic ADS-B: 0 to FFFFFFFFFFFFFFFFFFFFFFFF (24 hexadecimal ASCII) |
| | Long ADS-B: 0 to FFFFFFFFFFFFFFFFFFFFFFFFFFFF (28 hexadecimal ASCII) |
| **Example:** | :RGS:SCE:STAT:1:PLFEC FFFFFF00032000000\r |

### 5.9.7.16.5 Mode Status Payload Message Element

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruder number>{: PLMS}SP<numeric>CR |
| **Description:** | This command sets the Mode Status payload message element of the specified intruder. This command applies to ADS-B Messages with payload type code of ‘1’ and ‘3.’ The data message is padded on the right with zeros for a length 24 hexadecimal ASCII. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Numeric:** | 0 to FFFFFFFFFFFFFFFFFFFFFFFF (24 hexadecimal ASCII) |
| **Example:** | :RGS:SCE:STAT:1:PLMS 0FFCA1230000000001\r |

### 5.9.7.16.6 Auxiliary State Vector Payload Message Element

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruder number>{: PLASV}SP<numeric>CR |
| **Description:** | This command sets the auxiliary state vector payload message element of the specified intruder. This command applies to ADS-B Messages with payload type code of ‘1’, ‘2’, ‘5’ and ‘5.6.’ The data message is padded on the right with zeros for a length 10 hexadecimal ASCII. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Numeric:** | 0 to FFFFFFFFFF (10 hexadecimal ASCII) |
| **Example:** | :RGS:SCE:STAT:1:PLASV F00000000F\r |

### 5.9.7.16.7 Target State Payload Message Element

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruder number>{: PLTS}SP<numeric>CR |
| **Description:** | This command sets the intruder state payload message element of the specified intruder. This command applies to ADS-B Messages with payload type code of ‘3’, ‘4’ and ‘6.’ The data message is padded on the right with zeros for a length 10 hexadecimal ASCII. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Numeric:** | 0 to FFFFFFFFFF (10 hexadecimal ASCII) |
| **Example:** | :RGS:SCE:STAT:1:PLTS 300000000B\r |

### 5.9.7.16.8 Retrigger Long ADS-B Message Dataset Size

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruder number>{: DSSIZE}SP{48 \| 64 \| 80 \| 83 \| 107}CR |
| **Description:** | This command sets the dataset size for the ADS-N long message data used for UAT Special Test Mode (Retrigger Long ADS-B Message) of the specified intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Default:** | 48 |
| **Example:** | :RGS:SCE:STAT:1:DSSIZE 64\r |

#### 5.9.7.16.9 Ground Uplink Reed-Solomon Block Payload

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruder number>{:RSB:}<block number>{: PLMSG}SP<numeric>CR |
| **Description:** | This command sets the Reed-Solomon block payload data message of the specified intruder. This command is valid only for Payload Type Code 14 (Ground Uplink Matrix Message). The data message is padded on the right with zeros for a length according to the payload type code (144 hexadecimal ASCII). The <intruder number> specifies the number of the intruder in the channel grouping specified. The <block no> specifies the Reed-Solomon block number. |
| **Numeric:** | <block no> 1 to 6 (decimal ASCII) |
| | <numeric> FFFFFFFF....FFFFFF (144 hexadecimal ASCII) |
| **Example:** | :RGS:SCE:STAT:1:RSB:1:PLMSG 12000000000000444FFAA00\r |

#### 5.9.7.16.10 Ground Uplink Reed-Solomon Block FEC Parity

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruder number>{:RSB:}<block number>{: PLFEC }SP<numeric>CR |
| **Description:** | This command sets the Reed-Solomon block FEC parity of the specified intruder. This command is valid only for Payload Type Code 14 (Ground Uplink Matrix Message). The data message is padded on the right with zeros for a length according to the payload type code (40 hexadecimal ASCII). The <intruder number> specifies the number of the intruder in the channel grouping specified. The <block no> specifies the Reed-Solomon block number. |
| **Numeric:** | <block no> 1 to 6 (decimal ASCII) |
| | <numeric> FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF (40 hexadecimal ASCII) |
| **Example:** | :RGS:SCE:STAT:1:RSB:1:PLFEC DAA44D72EBA303374103DE72612A5773565DE276\r |

### 5.9.8 UAT GROUND UPLINK DEFINITION PARAMETERS

The following set of commands allows the user to define a ground uplink UAT message.

#### 5.9.8.1 UAT Specific Header

#### 5.9.8.1.1 Application Data Valid

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruder number>{:UAT}{:GUS}{:ADVALID}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the Application data valid condition of the specified intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Default:** | Off |
| **Example:** | :RGS:SCE:STAT:1:UAT:GUS:ADVALID ON\r |

#### 5.9.8.1.2 Ground Station Latitude

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruder number> {:UAT}{:GUS}{:LAT}SP<numeric>CR |
| **Description:** | This command sets the latitude of the ground station. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Numeric:** | -90 to 90 degrees (double ASCII) |
| **Example:** | :RGS:SCE:STAT:1:UAT:GUS:LAT 82.3321\r |

#### 5.9.8.1.3 Ground Station Longitude

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruder number> {:UAT}{:GUS}{:LONG}SP<numeric>CR |
| **Description:** | This command sets the longitude of the ground station. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Numeric:** | -180 to 180 degrees (double ASCII) |
| **Example:** | :RGS:SCE:STAT:1:UAT:GUS:LONG 24.6698\r |

#### 5.9.8.1.4 Position Valid

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruder number>{:UAT}{:GUS}{:POSVALID}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the Position valid condition of the specified intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Default:** | Off |
| **Example:** | :RGS:SCE:STAT:1:UAT:GUS:POSVALID ON\r |

#### 5.9.8.1.5 Slot ID

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruder number>{:UAT}{:GUS}{: SLOTID}SP<numeric>CR |
| **Description:** | This command sets the time slot where the Ground Uplink Message transmission occurs. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Numeric:** | 0 to 31 (decimal ASCII) |
| **Example:** | :RGS:SCE:STAT:1:UAT:GUS:SLOTID 3\r |

#### 5.9.8.1.6 TIS-B Site ID

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruder number>{:UAT}{:GUS}{: TISBID}SP<numeric>CR |
| **Description:** | This command sets the TIS-B Site ID of the specified intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Numeric:** | 0 to 31 (decimal ASCII) |
| **Example:** | :RGS:SCE:STAT:1:UAT:GUS:TISBID 2\r |

#### 5.9.8.1.7 UTC Coupled Condition

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC: \| :DYN: \| :DYNAMIC:}<intruder number>{:UTC}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the UTC coupled condition of the specified intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Example:** | :RGS:SCE:STAT:1:UTC ON\r |

### 5.9.8.2 Ground Uplink Application Data

#### 5.9.8.2.1 Information Frames Quantity

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruder number>{:UAT}{:GUS}{:IFRAME}{:NIFRAMES}SP<numeric>CR |
| **Description:** | This command sets the quantity of information frames for the selected intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Numeric:** | 0 to 255 (decimal ASCII) |
| **Example:** | :RGS:SCE:STAT:1:UAT:GUS:IFRAME:NIFRAMES 6\r |

#### 5.9.8.2.2 Information Frame Data

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruder number>{:UAT}{:GUS}{:IFRAME}<frame no>{:IFDATA}SP{{TEXT,<text>}\|{HEX,<numeric>}\|{FILE,<pathname>}}CR |
| **Description:** | This command sets the frame data content for the selected intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. The <frame no> specifies the number of the information frame. The source of the frame data content is from an alphanumeric string (TEXT), a hexadecimal string (HEX) or a file (FILE). |
| | {TEXT,<text>} |
| | <text> text ASCII |
| | |
| | {HEX,<numeric>} |
| | <numeric> hexadecimal ASCII |
| | |
| | {FILE,<pathname>} |
| | <pathname> text ASCII. For a correct pathname replace the “:” character next to the driver letter with the “..” character. |
| **Example:** | :RGS:SCE:STAT:2:UAT:GUS:IFRAME:1:IFDATA TEXT,Tail #1\r<br>:RGS:SCE:STAT:2:UAT:GUS:IFRAME:1:IFDATA HEX,FA123753\r<br>:RGS:SCE:STAT:2:UAT:GUS:IFRAME:1:IFDATA FILE,D..UATData.txt\r |

#### 5.9.8.2.3 Information Frame Type

| | |
|---|---|
| **Command Syntax:** | {:RTG \| :RTG2000NG}{:SCE \| :SCENARIO}{:STAT: \| :STATIC:}<intruder number>{:UAT}{:GUS}{:IFRAME}<frame no>{:IFTYPE}SP<numeric>CR |
| **Description:** | This command sets the frame data format for the selected intruder. The <intruder number> specifies the number of the intruder in the channel grouping specified. |
| **Numeric:** | 0 to 15 (decimal ASCII) |
| **Example:** | :RGS:SCE:STAT:2:UAT:GUS:IFRAME:2:IFTYPE 3\r |

### 5.9.9 VIDEO DATA BLOCK PARAMETERS

The following set of commands allows the user to define a video data block. The Unit has the capability of defining up to twelve (12) video data blocks. The user defines if the video data block replies to a Mode S or Mode C interrogation.

#### 5.9.9.1 Altitude

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:VDB:}<vdb number>{:ALT \| :ALTITUDE}SP<numeric>CR |
| **Description:** | This command allows setting the altitude of the selected VDB. |
| **Numeric:** | Altitude Binary Mode: -1000 to 50175 feet in 25 feet resolution (decimal ASCII) |
| | Altitude Gilham Mode: -1000 to 126700 feet in 100 feet resolution (decimal ASCII) |
| **Default:** | 0 feet |
| **Example:** | :RGS:SCE:VDB:1:ALT 1200\r |

#### 5.9.9.2 Altitude Mode

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:VDB:}<vdb number>{:AMODE}SP{BINARY \| GILHAM}CR |
| **Description:** | This command allows setting the altitude mode of the selected VDB. |
| **Default:** | Binary |
| **Example:** | :RGS:SCE:VDB:1:AMODE GILHAM\r |

#### 5.9.9.3 Amplitude Bits

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:VDB:}<vdb number>{:AMP \| :AMPLITUDE}SP<numeric>CR |
| **Description:** | This command allows setting the amplitude Bits of the selected VDB. |
| **Numeric:** | hexadecimal ASCII |
| **Default:** | Empty |
| **Example:** | :RGS:SCE:VDB:1:AMP -4\r |

#### 5.9.9.4 ATCRBS WS/ANT Trigger

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:VDB:}<vdb number>{:WS:}<wslevel>{:RPLYANT}SP {TOP \| BOTTOM }CR |
| **Description:** | This command allows setting the whisper/shout level and antenna trigger for an ATCRBS trigger of the selected VDB. |
| **Default:** | Whisper/Shout 0 and Bottom Antenna |
| **Numeric:** | wslevel = 0 to FF (hexadecimal ASCII characters) |
| **Example:** | :RGS:SCE:VDB:1:WS:1:RPLYANT TOP\r |

#### 5.9.9.5 ATCRBS WS/Quadrant Trigger

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:VDB:}<vdb number>{:WS:}<wslevel>{:RPLYQUAD}{:FORWARD \| :RIGHT \| :LEFT \| :AFTER \| :OMNI }CR |
| **Description:** | This command allows setting the whisper/shout level and quadrant trigger for an ATCRBS trigger of the selected VDB. |
| **Default:** | Whisper/Shout 0 and Forward Quadrant |
| **Numeric:** | wslevel = 0 to FF (hexadecimal ASCII) |
| **Example:** | :RGS:SCE:VDB:1:WS:1:RPLYQUAD FORWARD\r |

#### 5.9.9.6 Bearing

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:VDB:}<vdb number>{:BEA \| :BEARING}SP<numeric>CR |
| **Description:** | This command allows setting the bearing of the selected VDB. |
| **Numeric:** | 0 to 359 degrees (decimal ASCII) |
| **Default:** | 0 degrees |
| **Example:** | :RGS:SCE:VDB:1:BEA 25\r |

#### 5.9.9.7 Data Bits

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:VDB:}<vdb number>{:DATA}SP<numeric>CR |
| **Description:** | This command allows setting the data Bits of the selected VDB. |
| **Numeric:** | hexadecimal ASCII |
| **Default:** | Empty |
| **Example:** | :RGS:SCE:VDB:1:DATA FFF\r |

#### 5.9.9.8 Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:VDB:}<vdb number>{:ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command allows enabling or disabling the selected VDB. |
| **Default:** | On |
| **Example:** | :RGS:SCE:VDB:1:ENABLE OFF\r |

### 5.9.9.9 Mode S Address

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:VDB:}<vdb number>{:MSADDR}SP<numeric>CR |
| **Description:** | This command allows setting the trigger Mode S address of the selected VDB. |
| **Numeric:** | 0 to FFFFFF (hexadecimal ASCII) |
| **Default:** | First VDB has address 0x000001, second VDB has address 0x000002 ,... |
| **Example:** | :RGS:SCE:VDB:1:MSADDR 000003\r |

### 5.9.9.10 One-Shot Data Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:VDB:}<vdb number>{:ONE \| :ONESHOT}{:TIME:}<time number>{:ENA \| :ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the selected one-shot data message for the selected video data block. |
| **Numeric:** | ON (once one-shot defined). |
| **Example:** | :RGS:SCE:VDB:1:ONE:TIME:1:ENA ON\r |

### 5.9.9.11 One-Shot Data Quantity

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:VDB:}<vdb number>{:ONE \| :ONESHOT}{:NTIMES}SP<numeric>CR |
| **Description:** | This command sets the number of one-shot data message for the selected video data block. |
| **Numeric:** | 0 to 255 (decimal ASCII) |
| **Default:** | None |
| **Example:** | :RGS:SCE:VDB:1:ONE:NTIMES 10\r |

### 5.9.9.12 One-Shot Data Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:VDB:}<vdb number>{:ONE \| :ONESHOT}{:TIME:}<time number>{:BEGIN}SP<numeric>CR |
| **Description:** | This command sets the time for the selected one-shot data message for the selected video data block. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) |
| **Default:** | None |
| **Example:** | :RGS:SCE:VDB:1:ONE:TIME:1:BEGIN 3\r |

### 5.9.9.13 Quantity

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:VDB}{:QUAN \| :QUANTITY}SP<numeric>CR |
| **Description:** | This command allows setting the number of video data blocks that are defined. |
| **Numeric:** | 0 to 12 (decimal ASCII) |
| **Example:** | :RGS:SCE:VDB:QUAN 4\r |

### 5.9.9.14 Range

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:VDB:}<vdb number>{:RAN \| :RANGE}SP<numeric>CR |
| **Description:** | This command allows setting the range of the selected VDB. |
| **Numeric:** | 0 to 160 nmi (decimal ASCII) |
| **Default:** | 0 nmi |
| **Example:** | :RGS:SCE:VDB:1:RAN 27\r |

### 5.9.9.15 Reply Antenna

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:VDB:}<vdb number>{:RPLYANT}SP{TOP \| BOTTOM }CR |
| **Description:** | This command allows setting the reply antenna of the selected VDB. |
| **Default:** | Bottom Only |
| **Example:** | :RGS:SCE:VDB:1:RPLYANT TOP\r |

### 5.9.9.16 Reply Generator

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:VDB:}<vdb number>{:RPLYCH}SP{1 \| 2 \| 3}CR | |
| **Description:** | This command allows setting the reply generator of the selected VDB. | |
| **Numeric:** | 1 to 3 | |
| | **Value** | **Generator** |
| | 1 | Gen A |
| | 2 | Gen C |
| | 3 | Gen D |
| **Default:** | 1 (Gen A) | |
| **Example:** | :RGS:SCE:VDB:1:RPLYCH 3\r | |

### 5.9.9.17 Reply Power

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:VDB:}<vdb number>{:RPLYPWR}SP<numeric>CR |
| **Description:** | This command allows setting the reply power of the selected VDB. |
| **Numeric:** | High Power Mode: 1 to -69 dBm (decimal ASCII) |
| | Low Power Mode: -20 to -90 dBm (decimal ASCII) |
| **Default:** | -50 dBm |
| **Example:** | :RGS:SCE:VDB:1:RPLYPWR -30\r |

### 5.9.9.18 Resolution

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:VDB}{:RES \| :RESOLUTION}SP{25 \| 50}CR |
| **Description:** | This command allows setting the resolution of the video data block Bits to 25 or 50 ns. |
| **Default:** | 50 ns (Reset command returns setting back to 50 ns). |
| **Example:** | :RGS:SCE:VDB:RES 25\r |

### 5.9.9.19 Start Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:VDB:}<vdb number>{:BEGIN}SP<numeric>CR |
| **Description:** | This command allows setting the start time of the selected VDB. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SCE:VDB:1:BEGIN 6\r |

### 5.9.9.20 Stop Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:VDB:}<vdb number>{:END}SP<numeric>CR |
| **Description:** | This command allows setting the stop time of the selected VDB. |
| **Numeric:** | 0 to 6550 seconds (decimal ASCII) |
| **Default:** | Scenario end time. |
| **Example:** | :RGS:SCE:VDB:1:END 28\r |

### 5.9.9.21 Track

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:VDB:}<vdb number>{:TRACK}SP<numeric>CR |
| **Description:** | This command allows setting the track of the selected VDB. |
| **Numeric:** | -180 to 180 degrees (decimal ASCII) |
| | 0 to 360 degrees (decimal ASCII) |
| **Default:** | 0 degrees |
| **Example:** | :RGS:SCE:VDB:1:TRACK 90\r |

### 5.9.9.22 Trigger Mode

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:VDB:}<vdb number>{:MODE}SP{TCAS \| ATCRBS}CR |
| **Description:** | This command allows setting if the selected VDB triggers from an ATCRBS or TCAS (Mode S) interrogation. |
| **Default:** | TCAS |
| **Example:** | :RGS:SCE:VDB:1:MODE ATCRBS\r |

#### 5.9.9.23 Velocity

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:VDB:}<vdb number>{:VEL \| :VELOCITY}SP<numeric>CR |
| **Description:** | This command allows setting the velocity of the selected VDB. |
| **Numeric:** | 0 to 2000 knots (decimal ASCII) |
| **Default:** | 0 knots |
| **Example:** | :RGS:SCE:VDB:1:VEL 325\r |

#### 5.9.9.24 Vertical Rate

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SCE \| :SCENARIO}{:VDB:}<vdb number>{:VERT \| :VERTICAL}SP<numeric>CR |
| **Description:** | This command allows setting the vertical rate of the selected VDB. |
| **Numeric:** | -32704 to 32704 feet per minute (decimal ASCII) |
| **Default:** | 0 feet/minute |
| **Example:** | :RGS:SCE:VDB:1:VERT 500\r |

## 5.10 SETTINGS COMMANDS

The following set of commands allows the user to modify the OEM, Generator Frequency, Modulation (CW/Pulse), Factory Setting (Factory Reset), Receiver Path, Unit Scope Port and Generator Power.

These commands are used for troubleshooting the Unit and for calibration and factory testing of the Unit.

### 5.10.1 FACTORY SETTINGS

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SET \| :SETTINGS}{:FACT \| :FACTORY}SP{TCAS \| XPDR} CR |
| **Description:** | This command sets the Unit to the factory default settings for the current scenario type. |
| **Return:** | ”*” is returned if the command was able to complete successfully<br>“?”is returned if a failure occurs |
| **Example:** | :RGS:SET:FACT TCAS\r |

### 5.10.2 OEM

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SET \| :SETTINGS}{:OEM}SP<numeric>CR | |
| **Description:** | This command sets the phase tables for the selected OEM. A”*” is returned if the command was able to complete successfully or “?” if a failure occurs. | |
| **Return:** | ”*” is returned if the command was able to complete successfully.<br>“?” is returned if a failure occurs. | |
| **Numeric:** | 0 to 8 (decimal ASCII) | |
| | **Value** | **OEM** |
| | 0 | Honeywell Directional |
| | 1 | Honeywell Omni |
| | 2 | Collins Phase Directional |
| | 3 | Collins Phase Omni |
| | 4 | ACSS Directional |
| | 5 | ACSS Omni |
| | 6 | Collins Magnitude Directional |
| | 7 | Collins Magnitude Omni |
| | 8 | Garmin |
| | 9 | SELEX |
| | 10 | Avidyne ADS-B |
| | 11 | Avidyne TAS |
| | 12 | Honeywell TXD Directional |
| | 13 | Honeywell TXD Omni |
| | 14 | TPU-67 |
| **Default:** | Last OEM selected before power down. | |
| **Example:** | :RGS:SET:OEM 0\r | |

### 5.10.3 PHASE NOISE PARAMETERS

#### 5.10.3.1 Phase Noise

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SET \| :SETTINGS}{:PHA \| :PHASE}{:NOI \| :NOISE}SP<numeric>CR |
| **Description:** | This command sets the amount of phase noise to apply to the transmissions. |
| **Return:** | ”*” is returned if the command was able to complete successfully.<br>“?” is returned if a failure occurs. |
| **Numeric:** | 0 to 70 (decimal SASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:SET:PHA:NOI 70\r |

#### 5.10.3.2 Phase Noise Request

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SET \| :SETTINGS}{:PHA \| :PHASE}{:NOI \| :NOISE}?CR |
| **Description:** | This command returns the amount of phase noise. |
| **Return Value:** | Decimal value in ASCII. |
| **Example:** | :RGS:SET:PHA:NOI?\r |
| **Returns:** | 00 |

### 5.10.4 PULSE WIDTH

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SET \| :SETTINGS}{:PUL \| :PULSE}{:WID \| :WIDTH}SP<numeric> CR |
| **Description:** | This command increases or decreases the pulse width of 1090 reply messages. |
| **Numeric:** | The numeric value is ±100 ns.<br>The resolution is 25 ns. |
| **Return:** | ”*” is returned if the command was able to complete successfully<br>“?” if a failure occurs. |
| **Default:** | 0 |
| **Example:** | :RGS:SET:PUL:WID 25\r |

### 5.10.5 RECEIVER PATH

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SET \| :SETTINGS}{:RCV \| :RCVR}{:PA \| :PATH}SP<numeric>CR | |
| **Description:** | This command sets the receiver path for the top and bottom receiver to the channel represented by the numeric value. Chamber is selected when the Unit is working with an RF Amplifier (Chamber) Test Set option. The RF Amplifier (Chamber) directs the receive port to T1 and 30 dB of attenuation is removed from the Unit T1 path. Combiner is used to receive messages from the UUT when testing a magnitude TCAS system. | |
| **Numeric:** | 0 to 5 (decimal ASCII) | |
| | **Value** | **Channel** |
| | 0 | T1/B1 |
| | 1 | T2/B2 |
| | 2 | T3/B3 |
| | 3 | T4/B4 |
| | 4 | Chamber |
| | 5 | Combiner |
| **Return:** | ”*” is returned if the command was able to complete successfully<br>“?” if a failure occurs. | |
| **Default:** | T1/B1 | |
| **Example:** | :RGS:SET:RCV:PA 0\r | |

### 5.10.6 SCOPE PORT

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SET \| :SETTINGS}{:SCO \| :SCOPE}{:CH1 \| :CH2}SP<numeric>CR | |
| **Description:** | This command sets the scope multiplexer for Scope 1 or Scope 2 to the signal represented by the numeric value. | |
| **Numeric:** | 0 to 31 (decimal ASCII) | |
| | **Value** | **Receiver** |
| | 0 | 1090 Log Video Top |
| | 1 | 1030 Log Video Top |
| | 2 | 1090 Log Video Bottom |
| | 3 | 1030 Log Video Bottom |
| | 4 | DPSK 1030 Top (Delay) Not Used |
| | 5 | DPSK 1030 Bottom (Delay) Not Used |
| | 6 | Transmitter 1 (Gen A) Pulse Modulation |
| | 7 | Transmitter 2 (Gen B) Pulse Modulation |
| | 8 | Transmitter 3 (Gen C) Pulse Modulation |
| | 9 | Transmitter 4 (Gen D) Pulse Modulation |
| | 10 | Transmitter 5 (Gen E) Pulse Modulation |
| | 11 | Transmitter 6 (Gen F) Pulse Modulation |
| | 12 | Transmitter 2 (Gen B) DPSK Modulation |
| | 13 | Transmitter 4 (Gen D) DPSK Modulation |
| | 14 | Transmitter 6 (Gen F) DPSK Modulation |
| | 15 | I 1030 Top Receiver |
| | 16 | I 1030 Bottom Receiver |
| | 17 | Q 1030 Top Receiver |
| | 18 | Q 1030 Bottom Receiver |
| | 19 | I 1090 Top Receiver |
| | 20 | I 1090 Bottom Receiver |
| | 21 | Q 1090 Top Receiver |
| | 22 | Q 1090 Bottom Receiver |
| | 23 | Suppression In |
| | 24 | Receiver FPGA (Test Point) |
| | 25 | Transmitter FPGA (Test Point) |
| | 26 | Log Video 1030 Digital AGC Video |
| | 27 | Log Video 1090 Digital AGC Video |
| | 28 | DPSK Demodulation |
| | 29 | +3.3 V Monitor |
| | 30 | +1.8 V Monitor |
| | 31 | +1.2 V Monitor |
| **Default:** | Last state before power down. | |
| **Example:** | :RGS:SET:SCO:CH1 24\r | |

### 5.10.7 TX GENERATOR PARAMETERS

#### 5.10.7.1 Frequency

<table>
<tr><td>Command Syntax:</td><td colspan="5">{:RGS | :RGS2000NG}{:SET | :SETTINGS}{:GENA | :GENB | :GENC | :GEND | :GENE | :GENF}{:FREQ | :FREQUENCY}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td colspan="5">This command sets the selected generator frequency. The frequency is set from 962 to 1213 MHz in 100 kHz steps.</td></tr>
<tr><td>Return:</td><td colspan="5">”*” is returned if the command was able to complete successfully.<br>“?” is returned if a failure occurs.</td></tr>
<tr><td>Default:</td><td colspan="5">The default Value depends of the scenario type selected.</td></tr>
<tr><td></td><td></td><td>XPDR</td><td>TCAS</td><td>MULTI-RCVR</td><td></td></tr>
<tr><td></td><td>GenA</td><td>1030 MHz</td><td>1090 MHz</td><td>978 MHz</td><td></td></tr>
<tr><td></td><td>GenB</td><td>1030 MHz</td><td>1090 MHz</td><td>1090 MHz</td><td></td></tr>
<tr><td></td><td>GenC</td><td>1030 MHz</td><td>1090 MHz</td><td>978 MHz</td><td></td></tr>
<tr><td></td><td>GenD</td><td>1030 MHz</td><td>1090 MHz</td><td>1090 MHz</td><td></td></tr>
<tr><td></td><td>GenE</td><td>1030 MHz</td><td>1090 MHz</td><td>1090 MHz</td><td></td></tr>
<tr><td></td><td>GenF</td><td>1030 MHz</td><td>1090 MHz</td><td>1090 MHz</td><td></td></tr>
<tr><td></td><td colspan="5">For the scenario type UAT, the default settings depend of the UAT Test Mode. The generators GenD, GenE and GenF are disabled. Any command sent to a disabled generator is considered an invalid command.</td></tr>
<tr><td></td><td colspan="2">UAT Test Mode</td><td>GenA</td><td>GenB</td><td>GenC</td></tr>
<tr><td></td><td colspan="2">Normal</td><td>978 MHz</td><td>Disabled</td><td>978 MHz</td></tr>
<tr><td></td><td colspan="2">Overlapping</td><td>978 MHz</td><td>Disabled</td><td>978 MHz</td></tr>
<tr><td></td><td colspan="2">DME Fruit 12 μs spacing</td><td>978 MHz</td><td>Disabled</td><td>978 MHz</td></tr>
<tr><td></td><td colspan="2">Retrigger Long ADS-B Message</td><td>978 MHz</td><td>Disabled</td><td>978 MHz</td></tr>
<tr><td></td><td colspan="2">Retrigger Long Ground Link Message</td><td>978 MHz</td><td>Disabled</td><td>978 MHz</td></tr>
<tr><td></td><td colspan="2">1090 Pulse Interference</td><td>978 MHz</td><td>978 MHz</td><td>Disabled</td></tr>
<tr><td></td><td colspan="2">Ground Link Message Invalid MSO</td><td>978 MHz</td><td>Disabled</td><td>978 MHz</td></tr>
<tr><td></td><td colspan="2">Airborne Message Invalid MSO</td><td>978 MHz</td><td>Disabled</td><td>978 MHz</td></tr>
<tr><td></td><td colspan="2">Doppler Test</td><td>978 MHz</td><td>Disabled</td><td>978 MHz</td></tr>
<tr><td></td><td colspan="2">Modulation Frequency</td><td>978 MHz</td><td>Disabled</td><td>978 MHz</td></tr>
<tr><td></td><td colspan="2">DME Fruit 30 μs spacing</td><td>978 MHz</td><td>Disabled</td><td>978 MHz</td></tr>
<tr><td></td><td colspan="2">Doppler and Modulation Frequency</td><td>978 MHz</td><td>Disabled</td><td>978 MHz</td></tr>
<tr><td>Example:</td><td colspan="5">:RGS:SET:GENA:FREQ 1030.0\r</td></tr>
<tr><td>Query:</td><td colspan="5">:RGS:SET:GENA:FREQ?\r</td></tr>
<tr><td>Returns:</td><td colspan="5">1030.0</td></tr>
</table>

### 5.10.7.2 Modulation

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SET \| :SETTINGS}{:GENA \| :GENB \| :GENC \| :GEND \| :GENE \| :GENF}{:MOD \| :MODE}SP<CW \| PULSE>CR |
| **Description:** | This command sets the selected generator to either CW, pulse modulation or off. |
| **Return:** | ”*” is returned if the command was able to complete successfully.<br>“?” is returned if a failure occurs. |
| **Default:** | Pulse |
| **Example:** | :RGS:SET:GENA:MOD CW\r |
| **Query:** | :RGS:SET:GENA:MOD?\r |
| **Returns:** | CW |

### 5.10.7.3 Path

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SET \| :SETTINGS}{:GENA \| :GENB \| :GENC \| :GEND \| :GENE \| :GENF}{:PATH}SP<TOP \| BOTTOM>CR |
| **Description:** | This command sets the selected generator path to either top or bottom antenna. |

| | | | | |
|---|---|---|---|---|
| **Return:** | "*" is returned if the command was able to complete successfully<br>"?" if a failure occurs. | | | |
| **Default:** | The default Value depends of the scenario type selected. | | | |
| | **XPDR (Transponder)** | | | |
| | GenA | Top | | |
| | GenB | Top | | |
| | GenC | Bottom | | |
| | GenD | Bottom | | |
| | GenE | Top | | |
| | GenF | Top | | |
| | For the scenario type UAT, the default settings depend of the UAT Test Mode. The generators GenD, GenE and GenF are disabled. Any command sent to a disabled generator is considered an invalid command. | | | |
| | **UAT Test Mode** | **GenA** | **GenB** | **GenC** |
| | Normal | Top | Disabled | Bottom |
| | Overlapping | Top | Disabled | Bottom |
| | DME Fruit 12 µs spacing | Top | Disabled | Bottom |
| | Retrigger Long ADS-B Message | Top | Disabled | Bottom |
| | Retrigger Long Ground Link Message | Top | Disabled | Bottom |
| | 1090 Pulse Interference | Top | Top | Disabled |
| | Ground Link Message Invalid MSO | Top | Disabled | Bottom |
| | Airborne Message Invalid MSO | Top | Disabled | Bottom |
| | Doppler Test | Top | Disabled | Bottom |
| | Modulation Frequency | Top | Disabled | Bottom |
| | DME Fruit 30 µs spacing | Top | Disabled | Bottom |
| | Doppler and Modulation Frequency | Top | Disabled | Bottom |
| **Example:** | :RGS:SETTINGS:GENC:PATH TOP\r | | | |
| **Query:** | :RGS:SETTINGS:GENC:PATH?\r | | | |
| **Returns:** | TOP | | | |

### 5.10.7.4 Phase

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SET \| :SETTINGS}{:GENA \| :GENB \| :GENC \| :GEND \| :GENE \| :GENF}{:PHA \| :PHASE}SP<numeric>CR |
| **Description:** | This command sets the selected generator output phase according to the selected OEM. |
| **Numeric:** | 0 to 359 degrees |
| **Example:** | ::SETTINGS:GENC:PHASE 45 |
| **Return:** | "*" is returned if the command was able to complete successfully.<br>"?" if a failure occurs. |
| **Default:** | 0 degrees |
| **Example:** | :RGS:SETTINGS:GENC:PHASE 45\r |

### 5.10.7.5 Power

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SET \| :SETTINGS}{:GENA \| :GENB \| :GENC \| :GEND \| :GENE \| :GENF}{:POW \| :POWER}SP<numeric>CR |
| **Description:** | This command sets the selected generator output power level. |
| | The default Value depends of the scenario type selected. |
| | **UAT and XPDR (Transponder)** (depends on the Antenna Power Switch) |
| | Normal: -90 to -20 dBm (decimal ASCII) |
| | 20 dB Amplifier: -65 to 5 dBm (decimal ASCII) |
| | 20 dB Attenuator: -110 to -40 dBm (decimal ASCII) |
| | For the scenario type UAT, the generators GenD, GenE and GenF are disabled. Any command sent to a disabled generator is considered an invalid command. |
| **Return:** | ”*” is returned if the command was able to complete successfully<br>“?” if a failure occurs. |
| **Default:** | -20 dBm \| -40 dBm |
| **Example:** | :RGS:SETTINGS:GENA:POWER -20\r |
| **Query:** | :RGS:SETTINGS:GENA:POWER?\r |
| **Returns:** | -20.0 |

### 5.10.7.6 Rise/Fall Time

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SET \| :SETTINGS}{:GENA \| :GENC \| :GENE }{:RISE \| :RISEFALL}SP<numeric>CR | |
| **Description:** | This command sets the selected generator pulse rise and fall time. | |
| **Numeric:** | 0 to 4 (decimal ASCII) | |
| | For the scenario type UAT, the generators GenD, GenE and GenF are disabled. Any command sent to a disabled generator is considered an invalid command. | |
| | **Value** | **Rise/Fall** |
| | 0 | Less than 50/50 |
| | 1 | 100/200 |
| | 2 | 230/230 |
| | 3 | 600/600 |
| | 4 | Nominal (75/75) |
| **Return:** | ”*” is returned if the command was able to complete successfully<br>“?” if a failure occurs. | |
| **Default:** | 50/50 | |
| **Example:** | :RGS:SET:GENC:RISE 0\r | |
| **Query:** | :RGS:SET:GENC:RISE?\r | |
| **Returns:** | 0 | |

#### 5.10.7.7 Signal

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:SET \| :SETTINGS}{:GENA \| :GENB \| :GENC \| :GEND \| :GENE \| :GENF}{:SIGNAL \| :SIG}SP<ON \| OFF>CR |
| **Description:** | This command enables or disables the signal of the selected generator. For the scenario type UAT, the generators GenD, GenE and GenF are disabled. Any command sent to a disabled generator is considered an invalid command. |
| **Return:** | "*" is returned if the command was able to complete successfully "?" if a failure occurs. |
| **Default:** | On |
| **Example:** | :RGS:SET:GENA:SIG OFF\r |
| **Query:** | :RGS:SET:GENA:SIG?\r |
| **Returns:** | OFF |

## 5.11 TRANSPONDER COMMANDS

This set of commands allows the user to define the Unit to perform Transponder testing.

### 5.11.1 CABLE LOSS

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:CABLOS}SP<numeric>CR |
| **Description:** | This command sets the cable loss for the top antenna in 0.1 dB steps. |
| **Numeric:** | 0 to 2 dB (decimal ASCII) |
| **Default:** | 0 dB |
| **Example:** | :RGS:XPDR:CABLOS 0.1\r |
| **Query:** | :RGS:XPDR:CABLOS?\r |
| **Returns:** | 0.1 |

### 5.11.2 CABLE LOSS BOTTOM

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:CABLOSBOT}SP<numeric>CR |
| **Description:** | This command sets the cable loss for the bottom antenna in 0.1 dB steps. |
| **Numeric:** | 0 to 2 dB (decimal ASCII) |
| **Default:** | 0 dB |
| **Example:** | :RGS:XPDR:CABLOSBOT 0.1\r |
| **Query:** | :RGS:XPDR:CABLOSBOT?\r |
| **Returns:** | 0.1 |

### 5.11.3 INTERFERENCE PULSE

This set of commands allows the user to define an interference pulse. The first pulse is reference to the top P1 pulse in a single interrogation and the first interrogation in a double interrogation. The second interference pulse needs to be enabled to be transmitted.

#### 5.11.3.1 First Interference Pulse Width

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:INTERFERENCE \| :INTERF}{:P1WIDTH \| :P1W}SP<numeric>CR |
| **Description:** | This command sets the width of the first interference pulse. |
| **Numeric:** | 0 to 1.95 μs (decimal ASCII) |
| **Default:** | 0.8 μs |
| **Example:** | :RGS:XPDR:INTERF:P1W 0.9\r |
| **Query:** | :RGS:XPDR:INTERF:P1W?\r |
| **Returns:** | 0.9 |

#### 5.11.3.2 Interference Position

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:INTERFERENCE \| :INTERF}{:POSITION \| :POS}SP<numeric>CR |
| **Description:** | This command sets the first interference pulse position. |
| **Numeric:** | -14.975 to 393 μs (decimal ASCII) |
| **Default:** | 2.0 |
| **Example:** | :RGS:XPDR:INTERF:POS 3.9\r |
| **Query:** | :RGS:XPDR:INTERF:POS?\r |
| **Returns:** | 3.9 |

#### 5.11.3.3 Interference Pulse Amplitude

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:INTERFERENCE \| :INTERF}{:AMPLITUDE \| :AMP}SP<value>CR |
| **Description:** | This command sets the interference pulse amplitude. This affects both interference pulses if enabled. |
| **Value:** | -19 to 9 dB (decimal ASCII) \| CAL \| OFF |
| **Default:** | CAL |
| **Example:** | :RGS:XPDR:INTERF:AMP 3.0\r |
| **Query:** | :RGS:XPDR:INTERF:AMP?\r |
| **Returns:** | 3.0 |

#### 5.11.3.4 Interference Pulse Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:INTERFERENCE \| :INTERF}SP{ON \| OFF}CR |
| **Description:** | This command turns on or off the interference pulse. This command is valid only for single interrogation, double interrogation and interrogation table. |
| **Default:** | Off |
| **Example:** | :RGS:XPDR:INTERF ON\r |
| **Query:** | :RGS:XPDR:INTERF?\r |
| **Returns:** | ON |

#### 5.11.3.5 Second Interference Pulse Position

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:INTERFERENCE \| :INTERF}{:SPACING \| :SPAC}SP<numeric>CR |
| **Description:** | This command sets the spacing of the second interference pulse (P2) from the first. |
| **Numeric:** | 6.05 to 9.95 μs (decimal ASCII) |
| **Default:** | 8.0 |
| **Example:** | :RGS:XPDR:INTERF:SPAC 7.0\r |
| **Query:** | :RGS:XPDR:INTERF:SPAC?\r |
| **Returns:** | 7.0 |

#### 5.11.3.6 Second Interference Pulse State

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:INTERFERENCE \| :INTERF}{:STATE}SP{ON \| OFF}CR |
| **Description:** | This command turns on or off the second interference pulse (P2). |
| **Default:** | Off |
| **Example:** | :RGS:XPDR:INTERF:STATE ON\r |
| **Query:** | :RGS:XPDR:INTERF:STATE?\r |
| **Returns:** | ON |

#### 5.11.3.7 Second Interference Pulse Width

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:INTERFERENCE \| :INTERF}{:P2WIDTH \| :P2W}SP<numeric>CR |
| **Description:** | This command sets the width of the second interference pulse. |
| **Numeric:** | 0 to 1.95 μs (decimal ASCII) |
| **Default:** | 0.8 μs |
| **Example:** | :RGS:XPDR:INTERF:P2W 0.9\r |
| **Query:** | :RGS:XPDR:INTERF:P2W?\r |
| **Returns:** | 0.9 |

### 5.11.4 INTERROGATION FREQUENCY

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:FREQ \| :FREQUENCY}SP<numeric>CR |
| **Description:** | This command sets the transmission frequency of six generators. |
| **Numeric:** | 962 to 1213 MHz (decimal ASCII) |
| **Default:** | 1030 MHz |
| **Example:** | :RGS:XPDR:FREQ 1031.01\r |
| **Query:** | :RGS:XPDR:FREQ?\r |
| **Returns:** | 1031.01 |

### 5.11.5 INTERROGATION ON/OFF

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:RF}SP{ON \| OFF}CR |
| **Description:** | This command turns on or off the interrogations. This command is equivalent to start test. |
| **Example:** | :RGS:XPDR:RF ON\r |
| **Query:** | :RGS:XPDR:RF?\r |
| **Returns:** | ON |

### 5.11.6 INTERROGATION TEST TYPE

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:TYPE}SP<numeric>CR | |
| **Description:** | This command sets the transponder interrogation test type. This command must be sent before to define the pulse parameters. | |
| **Numeric:** | 0 to 4 (decimal ASCII) | |
| | **Value** | **Mode** |
| | 0 | Single Interrogation |
| | 1 | Double Interrogation |
| | 2 | Interrogation Table (Multiple) |
| | 3 | Block Transmission |
| | 4 | Interrogation with CW |
| **Default:** | 0 | |
| **Example:** | :RGS:XPDR:TYPE 1\r | |
| **Query:** | :RGS:XPDR:TYPE?\r | |
| **Returns:** | 1 | |

### 5.11.7 INTERROGATION TOP ANTENNA POWER

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:POW \| :POWER}SP<numeric>CR |
| **Description:** | This command sets the antenna power for the top antenna. The bottom antenna power uses this value plus the antenna power deviation setting. |
| **Numeric:** | -20 to -90 dBm (decimal ASCII) |
| **Default:** | -20 dBm |
| **Example:** | :RGS:XPDR:POW -21\r |
| **Query:** | :RGS:XPDR:POW?\r |
| **Returns:** | -21 |

### 5.11.8 LOAD TEST

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:LOAD}SP<filename>CR |
| **Description:** | This command loads a CSV test file (specified filename) from the internal storage area. |
| **Return:** | ”*” is returned if the command was able to complete successfully.<br>“?” is returned if a failure occurs. |
| **Example:** | :RGS:XPDR:LOAD Xpdr1.csv\r |
| **NOTE:** | Must have previously saved a test under file name to be loaded. |

### 5.11.9 RESET

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:RES \| :RESET}CR |
| **Description:** | This command resets the transponder test. |
| **Example:** | :RGS:XPDR:RES\r |

### 5.11.10 SAVE TEST

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:SAVE}SP<filename>CR |
| **Description:** | This command saves the current test into the internal storage area with the specified filename. |
| **Example:** | :RGS:XPDR:SAVE Xpdr1.csv\r |

### 5.11.11 SCOPE TRIGGER

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR:SCOPE}SP{INTERR \| REPLY}CR |
| **Description:** | This command sets the scope trigger either to the interrogation or the reply. |
| **Default:** | Interrogation |
| **Example:** | :RGS:XPDR:SCOPE REPLY\r |
| **Query:** | :RGS:XPDR:SCOPE?\r |
| **Returns:** | REPLY |

### 5.11.12 SCOPE TRIGGER OFFSET

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR:SCOPE:INTERR:OFFSET}SP<numeric>CR |
| **Description:** | This command sets the scope trigger offset from P1 of the interrogation. |
| **Numeric:** | -1 to 600 usec (Decimal ASCII) |
| **Default:** | -1 |
| **Example:** | :RGS:XPDR:SCOPE:INTERR:OFFSET 3\r |
| **Query:** | :RGS:XPDR:SCOPE:INTERR:OFFSET?\r |
| **Returns:** | 3 |

### 5.11.13 START TRANSMISSION

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:STA \| :START} CR |
| **Description:** | This command starts a predefined test. |
| **Example:** | :RGS:XPDR:STA\r |
| **Query:** | No – See INTERROGATION ON/OFF |

### 5.11.14 STOP TRANSMISSION

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:STO \| :STOP}CR |
| **Description:** | This command stops a test. |
| **Example:** | :RGS:XPDR:STO\r |
| **Query:** | No – See INTERROGATION ON/OFF |

### 5.11.15 SUPPRESSION OUTPUT

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:SUP \| :SUPPRESSION}SP{ON \| OFF}CR |
| **Description:** | This command turns on or off the suppression output of the unit. |
| **Default:** | Off |
| **Example:** | :RGS:XPDR:SUP ON\r |
| **Query:** | :RGS:XPDR:SUP?\r |
| **Returns:** | ON |

### 5.11.16 SUPPRESSION PERCENTAGE

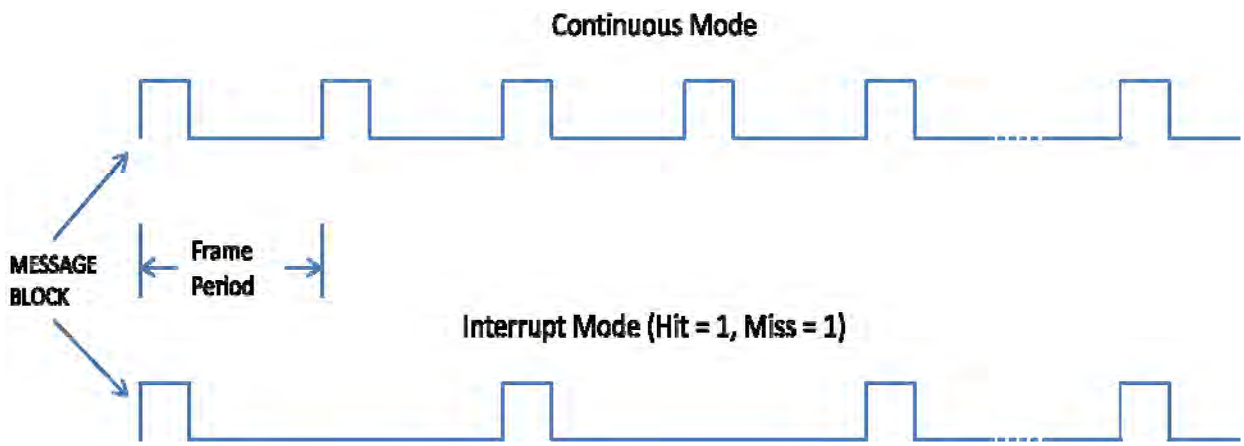
| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:SUPPERC \| :SUPP}SP<numeric>CR |
| **Description:** | This command sets the suppression percentage. |
| **Numeric:** | 0 to 100 (Decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:XPDR:SUPP 100\r |
| **Query:** | :RGS:XPDR:SUPP?\r |
| **Return:** | 100 |

### 5.11.17 TRANSMISSION MODES

#### 5.11.17.1 Block Transmissions

This set of commands allows the user to define block of messages to be transmitted.

##### 5.11.17.1.1 Block Parameters




###### 5.11.17.1.1.1 Frame Period

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:TXBLOCK}{:PERIOD }SP<numeric>CR |
| **Description:** | This command defines the block transmission period in ms. |
| **Numeric:** | 10 to 90000 (decimal ASCII) |
| **Default:** | 100 |
| **Example:** | :RGS:XPDR:TXBLOCK:PERIOD 10\r |
| **Query:** | :RGS:XPDR:TXBLOCK:PERIOD?\r |
| **Return:** | 10 |

###### 5.11.17.1.1.2 Hit

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{ :XPDR}{ :TXBLOCK}{:HIT }SP<numeric>CR |
| **Description:** | This command sets the number of consecutive blocks to transmit. |
| **Numeric:** | 0 to 20 (decimal ASCII) |
| **Default:** | 1 |
| **Example:** | :RGS:XPDR:TXBLOCK:HIT 6\r |
| **Query:** | :RGS:XPDR:TXBLOCK:HIT?\r |
| **Return:** | 6 |

### 5.11.17.1.1.3 Miss

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{ :XPDR}{ :TXBLOCK}{:MISS }SP<numeric>CR |
| **Description:** | This command sets the number of consecutive non-transmitted blocks. |
| **Numeric:** | 0 to 20 (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:XPDR:TXBLOCK:MISS 4\r |
| **Query:** | :RGS:XPDR:TXBLOCK:MISS?\r |
| **Return:** | 4 |

### 5.11.17.1.1.4 Mode

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{ :XPDR}{ :TXBLOCK}{:MODE }SP{CONTINUOUS \| INTERRUPT}CR |
| **Description:** | This command sets the transmission mode. |
| **Default:** | CONTINUOUS |
| **Example:** | :RGS:XPDR:TXBLOCK:MODE CONTINUOUS\r |
| **Query:** | :RGS:XPDR:TXBLOCK:MODE?\r |
| **Return:** | CONTINUOUS |

### 5.11.17.1.1.5 Transmissions

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{ :XPDR}{ :TXBLOCK}{:TRANSMISSIONS \| :TRANS}SP{NOLIMIT \| <numeric>}CR |
| **Description:** | This command sets the total number of blocks transmission. |
| **Numeric:** | 1 to 50000 (decimal ASCII) |
| **Default:** | NOLIMIT |
| **Example:** | :RGS:XPDR:TXBLOCK:TRANS NOLIMIT\r |
| **Query:** | :RGS:XPDR:TXBLOCK:TRANS?\r |
| **Return:** | NO LIMIT |

#### 5.11.17.1.2 Message Parameters

##### 5.11.17.1.2.1 Data

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:TXBLOCK:}<message number> {:MESS \| :MESSAGE}SP<numeric>CR |
| **Description:** | This command sets the data message for the message selected. |
| **Message Number:** | 1 to 1000 |
| **Numeric:** | Short message 0 to FFFFFFFFFFFFFF (14 hexadecimal ASCII) |
| | Long message 0 to FFFFFFFFFFFFFFFFFFFFFFFFFFFF (28 hexadecimal ASCII) (The last six characters are the Mode S Address). |
| **Default:** | 00000000000001 for Mode S Interrogation and Mode S Message. |
| **Example:** | :RGS:XPDR:TXBLOCK:1:MESS 7ABA3259A66BBB\r |
| **Query:** | :RGS:XPDR:TXBLOCK:1:MESS?\r |
| **Return:** | 7ABA3259A66BBB |

##### 5.11.17.1.2.2 Message Quantity

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:TXBLOCK}{:NMESSAGES \| :NMESS}SP<decimal>CR |
| **Description:** | This command sets the number of the messages. |
| **Numeric:** | 0 to 1000 (decimal ASCII) |
| **Example:** | :RGS:XPDR:TXBLOCK:NMESS 45\r |
| **Query:** | :RGS:XPDR:TXBLOCK:NMESS?\r |
| **Return:** | 45 |

##### 5.11.17.1.2.3 Power Level

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:TXBLOCK:}<message number>{:POWER \| :POW}SP<numeric>CR |
| **Description:** | This command sets the power level of the message selected. |
| **Message Number:** | 1 to 1000 |
| **Numeric:** | -20 to -90 dBm (decimal ASCII) |
| **Default:** | -20 dBm |
| **Example:** | :RGS:XPDR:TXBLOCK:3:POW -31\r |
| **Query:** | :RGS:XPDR:TXBLOCK:3:POW?\r |
| **Return:** | -31 |

#### 5.11.17.1.2.4 Time

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:TXBLOCK:}<message number>{:TIME}SP<numeric>CR |
| **Description:** | This command sets the starting transmission time (in μs) within the block of the message selected. |
| **Message Number:** | 1 to 1000 |
| **Numeric:** | 0 to 89999880 (decimal ASCII) |
| **Default:** | 0 μs. Every additional message defaults 130 μs after the previous. Maximum time depends on frame period value. |
| **Example:** | :RGS:XPDR:TXBLOCK:3:TIME 77\r |
| **Query:** | :RGS:XPDR:TXBLOCK:3:TIME?\r |
| **Return:** | 77 |

#### 5.11.17.1.2.5 Type

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:TXBLOCK:}<message number>{:TYPE}SP<numeric>[,<numeric1>]CR | |
| **Description:** | This command sets the type of the message selected. The optional argument <numeric1> defines the ATCRBS Interrogation type. | |
| **Message Number:** | 1 to 1000 | |
| **Numeric:** | 1 to 2 (decimal ASCII) | |
| | If the scenario type selected was XPDR (Transponder), the valid values are 1 and 2. | |
| | **Value** | **Type** |
| | 1 | Mode S Interrogation |
| | 2 | ATCRBS Interrogation |
| **Default:** | Mode S Message | |
| **Numeric1:** | 1 to 6 (decimal ASCII) | |
| | Valid only if the type of message defined in <Numeric> is ATCRBS Interrogation. | |
| | **Value** | **Type** |
| | 1 | Mode A |
| | 2 | Mode C |
| | 3 | Mode A Only All Call |
| | 4 | Mode C Only All Call |
| | 5 | Mode A/Mode S All Call |
| | 6 | Mode C/Mode S All Call |
| **Default:** | Mode A | |
| **Example:** | :RGS:XPDR:TXBLOCK:4:TYPE 2,2\r | |
| **Query:** | :RGS:XPDR:TXBLOCK:4:TYPE?\r | |
| **Return:** | 2,2 | |

#### 5.11.17.2 Double Interrogation

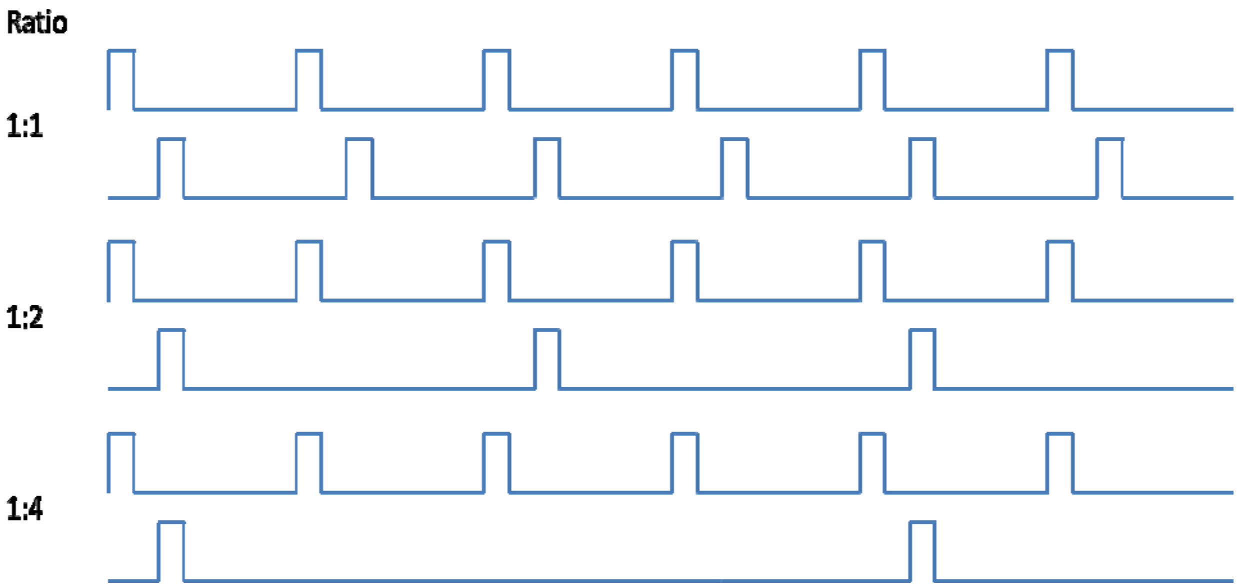
This set of commands allows the user to setup double interrogations. In double interrogations, both interrogations are outputted on the top antenna port.

##### 5.11.17.2.1 Frequency

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:DBL:}<interrogation number>{:FREQ \| :FREQUENCY}SP<numeric>CR |
| **Description:** | This command sets the transmission frequency of the selected double interrogation. <interrogation number> defines the double interrogation number. |
| **Numeric:** | 952 to 1223 MHz (Decimal ASCII) |
| **Default:** | 1030 MHz |
| **Example:** | :RGS:XPDR:DBL:1:FREQ 1031\r |
| **Query:** | :RGS:XPDR:DBL:1:FREQ?\r |
| **Return:** | 1031.0 |

##### 5.11.17.2.2 Interlaced Mode

This set of commands allows the user to define an interlace mode. The illustration below demonstrates how the interlaced ratio operates.




###### 5.11.17.2.2.1 Interlaced Mode ON/OFF

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:DBL}{:INTERLACED \| :INT}SP{ON \| OFF}CR |
| **Description:** | This command turns on or off the interlaced mode. |
| **Default:** | Off |
| **Example:** | :RGS:XPDR:DBL:INT ON\r |
| **Query:** | :RGS:XPDR:DBL:INT?\r |
| **Return:** | ON |

#### 5.11.17.2.2.2 Interlaced Ratio

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:DBL}{:IRATIO}SP<numeric>CR |
| **Description:** | This command sets the interlace ratio between the first interrogation and the second. For example, if the user enters an interlaced ratio of 2, the second interrogation is transmitted every other interrogation period of the first. |
| **Numeric:** | 1 to 1000 (decimal ASCII) |
| **Default:** | 1 |
| **Example:** | :RGS:XPDR:DBL:IRATIO 11\r |
| **Query:** | :RGS:XPDR:DBL:IRATIO?\r |
| **Return:** | 11 |

#### 5.11.17.2.3 Mode

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:DBL:}<interrogation number>{:MOD \| :MODE}SP<numeric>CR | |
| **Description:** | This command sets the transponder interrogation mode of the selected double interrogation. <interrogation number> defines the double interrogation number. | |
| **Interrogation:** | 1 to 2 (decimal ASCII) | |
| **Numeric:** | 0 to 11 (decimal ASCII) | |
| | **Value** | **Mode** |
| | 0 | Mode A |
| | 1 | Mode C |
| | 2 | Mode A Only All Call |
| | 3 | Mode C Only All Call |
| | 4 | Mode A/Mode S All Call |
| | 5 | Mode C/Mode S All Call |
| | 6 | Mode S |
| | 7 | P1 to P2 |
| | 8 | Pulse |
| | 9 | DME 12 µs Spacing |
| | 10 | DME 30 µs Spacing |
| | 11 | Alternate Mode A/Mode C |
| **Default:** | 0 | |
| **Example:** | :RGS:XPDR:DBL:2:MOD 6\r | |
| **Query:** | :RGS:XPDR:DBL:2:MOD?\r | |
| **Return:** | 6 | |

#### 5.11.17.2.4 Mode S Interrogation Message Data

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:DBL:}<interrogation number>{:UF}SP<numeric>CR |
| **Description:** | This command sets the data message for the Mode S Interrogation of the selected double interrogation. <interrogation number> defines the double interrogation number. |
| **Interrogation:** | 1 to 2 (decimal ASCII) |
| **Numeric:** | Short interrogation 0 to FFFFFFFFFFFFFF (14 hexadecimal ASCII) |
| | Long interrogation 0 to FFFFFFFFFFFFFFFFFFFFFFFFFFFF ( 28 hexadecimal ASCII). The last six characters are the Mode S Address. |
| **Default:** | 00000000000001 |
| **Example:** | :RGS:XPDR:DBL:2:UF 5AC4727338FF22\r |
| **Query:** | :RGS:XPDR:DBL:2:UF ?\r |
| **Return:** | AC4727338FF22 |

#### 5.11.17.2.5 P1 to P1 Spacing

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:DBL}{:P1TOP1}SP<numeric>CR |
| **Description:** | This command sets the interrogations spacing from P1 of the first interrogation to P1 of the second interrogation. |
| **Numeric:** | 0 to 400 µs (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:XPDR:DBL:P1TOP1 44\r |
| **Query:** | :RGS:XPDR:DBL:P1TOP1?\r |
| **Return:** | 44 |

#### 5.11.17.2.6 Pulse Power Level

| | |
|---|---|
| **Command Syntax:** | {:RGS \|:RGS2000NG}{:XPDR}{:DBL:}<interrogation number>{:POW \|:POWER}SP<numeric>CR |
| **Description:** | This command sets the antenna power for the top antenna of the selected double interrogation. <interrogation number> defines the double interrogation number. The power level range depends on the power mode selected using the previous command. The bottom antenna power uses this value plus the antenna power deviation setting. |
| **Numeric:** | -90 to -20 dBm (decimal ASCII) |
| **Default:** | -20 |
| **Example:** | :RGS:XPDR:DBL:1:POW -31\r |
| **Query:** | :RGS:XPDR:DBL:1:POW?\r |
| **Returns:** | -31.0 |

#### 5.11.17.2.7 Pulse Parameter

<table>
<tr><td>Command Syntax:</td><td colspan="2">{:RGS | :RGS2000NG}{:XPDR}{:DBL:}<interrogation number>{:PUL: | :PULSE:}<pulse>SP<value>[,<value1>] CR</td></tr>
<tr><td>Description:</td><td colspan="2">This command sets the selected pulse parameter of the selected double interrogation. <interrogation number> defines the double interrogation number. The optional <value1> is ignored if the interrogation mode is not “Alternate Mode A/Mode C” for the selected double interrogation. For “Alternate Mode A/Mode C”, the <value> is used to define the Mode A pulse and the <value1> is used to define the Mode C pulse.</td></tr>
<tr><td>Interrogation:</td><td>1 to 2 (decimal ASCII)</td><td></td></tr>
<tr><td>Pulse/Value:</td><td><pulse></td><td><value>|<value1></td></tr>
<tr><td></td><td>:PALLWIDTH | :PALLW</td><td>0 to 1.95</td></tr>
<tr><td></td><td>:P1WIDTH | :P1W</td><td>0 to 1.95</td></tr>
<tr><td></td><td>:P2WIDTH | :P2W</td><td>0 to 1.95</td></tr>
<tr><td></td><td>:P3WIDTH | :P3W</td><td>0 to 1.95</td></tr>
<tr><td></td><td>:P4WIDTH | :P4W</td><td>0 to 1.95</td></tr>
<tr><td></td><td>:P5WIDTH | :P5W</td><td>0.2 to 1.95</td></tr>
<tr><td></td><td>:P6ENDWIDTH | :P6ENDW</td><td></td></tr>
<tr><td></td><td>:P1POWER | :P1P</td><td>-19 to 9 | CAL | OFF</td></tr>
<tr><td></td><td>:P2POWER | :P2P</td><td>-19 to 9 | CAL | OFF</td></tr>
<tr><td></td><td>:P3POWER | :P3P</td><td>-19 to 9 | CAL | OFF</td></tr>
<tr><td></td><td>:P4POWER | :P4P</td><td>-19 to 9 | CAL | OFF</td></tr>
<tr><td></td><td>:P5POWER | :P5P</td><td>-19 to 9 | CAL | OFF</td></tr>
<tr><td></td><td>:P12SPACING | :P12S</td><td>All Call | Mode C | Mode C Only All Call | Mode C/Mode S All Call 0.05 to 3.95 Mode S 1.0 to 3.0</td></tr>
<tr><td></td><td>:P13SPACING | :P13S</td><td>Mode A | Mode A Only All Call 7.0 to 9.0 | Mode A/</td></tr>
<tr><td></td><td></td><td>Mode S All Call 6.05 to 9.95 Mode C | Mode C Only All Call | Mode C/Mode S All Call 19.05 to 22.95. Not Valid for Mode S.</td></tr>
<tr><td></td><td>:P34SPACING | :P34S</td><td>Mode A Only All Call | Mode A/Mode S All Call |</td></tr>
<tr><td></td><td></td><td>Mode C Only All Call | Mode C/Mode S All Call 0.05 to 3.95. Not Valid for Mode A, Mode C and Mode S.</td></tr>
<tr><td></td><td>:P16SPACING | :P16S</td><td>1.55 to 5.45. Valid only for Mode S.</td></tr>
<tr><td></td><td>:P1SPRSPACING | :P1SPRS</td><td>3.75 to 5.75. Valid only for Mode S.</td></tr>
<tr><td></td><td>:P15SPACING | :P15S</td><td>2.4 to 6.3. Valid only for Mode S.</td></tr>
<tr><td>Example:</td><td colspan="2">(Mode A interrogation)<br>:RGS:XPDR:DBL:1:PUL:P3W 1.1\r</td></tr>
<tr><td>Example:</td><td colspan="2">(Alternate Mode A/mode C interrogation)<br>:RGS:XPDR:DBL:1:PUL:P3W 1.1,1.9\r</td></tr>
<tr><td>Query:</td><td colspan="2">:RGS:XPDR:DBL:1:PUL:P3W?\r<br>(Not applicable for PALLWIDTH)</td></tr>
<tr><td>Returns:</td><td colspan="2">1.100</td></tr>
</table>

### 5.11.17.2.8 Pulse Repetition Frequency (PRF)

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:DBL:} <interrogation number>{:PRF }SP<numeric>CR |
| **Description:** | This command sets the pulse repetition rate (PRF) of the selected double interrogation. <interrogation number> defines the double interrogation number. |
| **Interrogation:** | 1 to 2 (decimal ASCII) |
| **Numeric:** | 1 to 10000 (decimal ASCII) |
| **Default:** | 100 |
| **Example:** | :RGS:XPDR:DBL:2:PRF 50\r |
| **Query:** | :RGS:XPDR:DBL:2:PRF?\r |
| **Returns:** | 50 |

### 5.11.17.2.9 Pulse Width

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:DBL:}<interrogation number>{:PWIDTH \| :PW}SP<numeric>CR |
| **Description:** | This command sets the pulse width of the selected double interrogation. <interrogation number> defines the double interrogation number. |
| **Interrogation:** | 1 to 2 (decimal ASCII) |
| **Numeric:** | 0 to 5 μs (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:XPDR:DBL:1:PW 1.1\r |
| **Query:** | :RGS:XPDR:DBL:1:PW?\r |
| **Returns:** | 1.1 |
| **NOTE:** | This command is valid only for the transponder interrogation mode Pulse. |

### 5.11.17.2.10 PRF Synchronization

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:DBL:}<interrogation number>{:PRFSYNC}SP{ON \| OFF}CR |
| **Description:** | This command turns on or off the synchronization output of the selected double interrogation. <interrogation number> defines the double interrogation number. |
| **Interrogation:** | 1 to 2 (decimal ASCII) |
| **Default:** | Off |
| **Example:** | :RGS:XPDR:DBL:1:PRFSYNC ON\r |
| **Query:** | :RGS:XPDR:DBL:1:PRFSYNC?\r |
| **Returns:** | ON |
| **NOTE:** | This command is valid only for the following transponder interrogation modes: P1 to P2, Pulse, DME 12 μs Spacing and DME 30 μs Spacing. |

#### 5.11.17.2.11 Side Lobe Suppression (SLS)

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:XPDR}{:DBL:}<interrogation number>{:SLS}SP{ON | OFF}[,{ON | OFF}]CR</td></tr>
<tr><td>Description:</td><td>This command turns on or off SLS (P2) pulse in an ATCRBS interrogation of the selected double interrogation. <interrogation number> defines the double interrogation number. The optional {ON | OFF} is ignored if the interrogation mode is not “Alternate Mode A/Mode C” for the selected double interrogation. For “Alternate Mode A/Mode C”, the first {ON | OFF} is used to define the Mode A pulse and the second (or the optional) is used to define the Mode C pulse.</td></tr>
<tr><td>Interrogation:</td><td>1 to 2 (decimal ASCII)</td></tr>
<tr><td>Default:</td><td>Off</td></tr>
<tr><td>Example:</td><td>:RGS:XPDR:DBL:1:SLS ON\r</td></tr>
<tr><td>Query:</td><td>:RGS:XPDR:DBL:1:SLS?\r</td></tr>
<tr><td>Returns:</td><td>ON</td></tr>
</table>

#### 5.11.17.2.12 Synchronization

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:XPDR}{:DBL}{:SYNC}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command allows selecting the interrogation number for synchronization. The measured UUT values are obtained from the reply associated with the interrogation selected for synchronization.</td></tr>
<tr><td>Numeric:</td><td>1 to 2 (decimal ASCII)</td></tr>
<tr><td>Default:</td><td>1</td></tr>
<tr><td>Example:</td><td>:RGS:XPDR:DBL:SYNC 2\r</td></tr>
<tr><td>Query:</td><td>:RGS:XPDR:DBL:SYNC?\r</td></tr>
<tr><td>Returns:</td><td>2</td></tr>
</table>

### 5.11.17.3 Interrogation Table

This set of commands allows the user to define the Interrogation table. The table can have from 1 to 32 interrogations. When the interrogations are enabled, the Unit transmits from the first entry on the table to the last entry. Each PRF cycle the Unit transmits one interrogation and advances to the next table entry. Once the last entry is transmitted the Unit starts with the first entry.

#### 5.11.17.3.1 Burst Mode

Burst Mode transmits the interrogations in the table. If the table only has for example three interrogations and the burst count is five, then the following sequence of interrogations are transmitted: Entry1, Entry2, Entry3, Entry1 and Entry2. If a burst spacing greater than 0 is defined, then the next burst sequence begins with Entry1 again. I For example the table has ten interrogations and burst count is five, then the first five interrogations are transmitted and on the next burst the same five are transmitted. If the burst count is 0, then every time a burst start command is received the number of interrogations in the burst count are transmitted.

#### 5.11.17.3.1.1 Burst Operation Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:ITABLE}{:BURST}SP{ON \| OFF}CR |
| **Description:** | This command enables or disables the burst operation. |
| **Default:** | Off |
| **Example:** | :RGS:XPDR:ITABLE:BURST ON\r |
| **Query:** | :RGS:XPDR:ITABLE:BURST?\r |
| **Returns:** | ON |

#### 5.11.17.3.1.2 Burst Count

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:ITABLE}{:BURST:COUNT}SP<numeric>CR |
| **Description:** | This command sets the burst count which is the number of interrogations that are sent once the operation starts. |
| **Numeric:** | 1 to 1000 (decimal ASCII) |
| **Default:** | 200 |
| **Example:** | :RGS:XPDR:ITABLE:BURST:COUNT 10\r |
| **Query:** | :RGS:XPDR:ITABLE:BURST:COUNT?\r |
| **Returns:** | 10 |

#### 5.11.17.3.1.3 Burst Spacing

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:ITABLE}{:BURST:GAP}SP<numeric>CR |
| **Description:** | This command sets the burst repetition gap time which is the delay time after one set of burst interrogations. The gap time is defined in 0.1 steps. For a single occurrence, define the burst spacing to zero. |
| **Numeric:** | 0 to 20 seconds (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:XPDR:ITABLE:BURST:GAP 3\r |
| **Query:** | :RGS:XPDR:ITABLE:BURST:GAP?\r |
| **Returns:** | 3 |
| **NOTE:** | This shows as Burst Spacing on Burst Setting menu. |

#### 5.11.17.3.1.4 Burst Start/Stop

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:ITABLE}{:BURST}{:START \| :STOP}CR |
| **Description:** | This command turns on or off the burst operation. |
| **Example:** | :RGS:XPDR:ITABLE:BURST:START\r |

### 5.11.17.3.2 Number of Interrogations

| | |
|---|---|
| **Command Syntax:** | {:RGS \|:RGS2000NG}{:XPDR}{:ITABLE}{:NINT}SP<numeric>CR |
| **Description:** | This command sets the number of interrogations of the interrogation table. |
| **Numeric:** | 1 to 32 (decimal ASCII) |
| **Default:** | 1 |
| **Example:** | :RGS:XPDR:ITABLE:NINT 3\r |
| **Query:** | :RGS:XPDR:ITABLE:NINT?\r |
| **Return:** | 3 |

### 5.11.17.3.3 Pulse Repetition Frequency (PRF)

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:ITABLE}{:PRF }SP<numeric>CR |
| **Description:** | This command sets the pulse repetition rate (PRF) for all table entries. |
| **Numeric:** | 1 to 400 (decimal ASCII) |
| | 1 to 2500 (decimal ASCII). Valid only when the burst operation is enabled. |
| **Default:** | 100 |
| **Example:** | :RGS:XPDR:ITABLE:PRF 125\r |
| **Query:** | :RGS:XPDR:ITABLE:PRF?\r |
| **Returns:** | 125 |

### 5.11.17.3.4 Table Entry Antenna Power Deviation

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:ITABLE:}<table entry>{:ANT \| :ANTENNA}{:POW \| :POWER}SP<numeric>CR |
| **Description:** | This command sets the antenna power deviation between the top and bottom antenna of the selected table entry. |
| **Table Entry:** | 1 to 32 (decimal ASCII) |
| **Numeric:** | 0 to 5 dB (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:XPDR:ITABLE:2:ANT:POW -19\r |
| **Query:** | :RGS:XPDR:ITABLE:2:ANT:POW?\r |
| **Returns:** | -19 |

### 5.11.17.3.5 Table Entry Antenna Time Deviation

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:ITABLE:}<table entry>{:ANT \| :ANTENNA}{:TIM \| :TIME}SP<numeric>CR |
| **Description:** | This command sets the antenna time deviation between the top and bottom antenna of the selected table entry. |
| **Table Entry:** | 1 to 32 (decimal ASCII) |
| **Numeric:** | -0.975 to 0.975 µs (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:XPDR:ITABLE:1:ANT:TIM 0.5\r |
| **Query:** | :RGS:XPDR:ITABLE:1:ANT:TIM?\r |
| **Returns:** | 0.5 |

### 5.11.17.3.6 Table Entry Enable

| | |
|---|---|
| **Command Syntax:** | {:RGS \|:RGS2000NG}{:XPDR}{:ITABLE:}<table entry>{:ENABLE}SP{ON \| OFF}CR |
| **Description:** | This command turns on or off the interrogation of the selected table entry. |
| **Table Entry:** | 1-1000 (Decimal ASCII) |
| **Default:** | ON |
| **Example:** | :RGS:XPDR:ITABLE:1:ENABLE OFF\r |
| **Query:** | :RGS:XPDR:ITABLE:1:ENABLE?\r |
| **Return:** | OFF |

### 5.11.17.3.7 Table Entry Interrogation Mode

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:ITABLE:}<table entry>{:MOD \| :MODE}SP<numeric>CR | |
| **Description:** | This command sets the transponder interrogation mode of the table entry selected. | |
| **Table Entry:** | 1 to 32 (decimal ASCII) | |
| **Numeric:** | 0 to 6 (decimal ASCII) | |
| | **Value** | **Mode** |
| | 0 | Mode A |
| | 1 | Mode C |
| | 2 | Mode A Only All Call |
| | 3 | Mode C Only All Call |
| | 4 | Mode A/Mode S All Call |
| | 5 | Mode C/Mode S All Call |
| | 6 | Mode S |
| **Default:** | 0 | |
| **Example:** | :RGS:XPDR:ITABLE:1:MOD 6\r | |
| **Query:** | :RGS:XPDR:ITABLE:1:MOD?\r | |
| **Returns:** | 6 | |
| **NOTE:** | This command must be sent before defining the pulse parameters. | |

#### 5.11.17.3.8 Table Entry Mode S Interrogation Message Data

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:XPDR}{:ITABLE:}<table entry>{:UF}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the data message for the Mode S Interrogation of the selected table entry.</td></tr>
<tr><td>Table Entry:</td><td>1 to 32 (decimal ASCII)</td></tr>
<tr><td>Numeric:</td><td>Short interrogation 0 to FFFFFFFFFFFFFF (14 hexadecimal ASCII)</td></tr>
<tr><td></td><td>Long interrogation 0 to FFFFFFFFFFFFFFFFFFFFFFFFFFFF ( 28 hexadecimal ASCII). The last six characters are the Mode S Address.</td></tr>
<tr><td>Default:</td><td>00000000000001</td></tr>
<tr><td>Example:</td><td>:RGS:XPDR:ITABLE:1:UF 123456789ABCDE\r</td></tr>
<tr><td>Query:</td><td>:RGS:XPDR:ITABLE:1:UF?\r</td></tr>
<tr><td>Returns:</td><td>123456789ABCDE</td></tr>
</table>

#### 5.11.17.3.9 Table Entry Pulse Power Level

<table>
<tr><td>Command Syntax:</td><td>{:RGS |:RGS2000NG}{:XPDR}{:ITABLE:}<table entry>{:POW |:POWER}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the antenna power for the top antenna of the table entry selected.</td></tr>
<tr><td>Table Entry:</td><td>1 to 1000 (decimal ASCII)</td></tr>
<tr><td>Numeric:</td><td>-90 TO -20 dBm (decimal ASCII)</td></tr>
<tr><td>Default:</td><td>-20 dBm</td></tr>
<tr><td>Example:</td><td>:RGS:XPDR:ITABLE:1:POW -31\r</td></tr>
<tr><td>Query:</td><td>:RGS:XPDR:ITABLE:1:POW?\r</td></tr>
<tr><td>Return:</td><td>-31.0</td></tr>
<tr><td>NOTE:</td><td>The power level range depends of the power mode selected using the previous command.</td></tr>
</table>

### 5.11.17.3.10 Table Entry Pulse Parameter

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:ITABLE:}<table entry>{:PUL: \| :PULSE:}<pulse>SP<value>CR | |
| **Description:** | This command sets the selected pulse parameter of the selected table entry. | |
| **Table Entry:** | 1 to 32 (decimal ASCII) | |
| **Pulse/Value:** | **<pulse>** | **<value>** |
| | :PALLWIDTH \| :PALLW | 0 to 1.95 |
| | :P1WIDTH \| :P1W | 0 to 1.95 |
| | :P2WIDTH \| :P2W | 0 to 1.95 |
| | :P3WIDTH \| :P3W | 0 to 1.95. Not Valid for Mode S. |
| | :P4WIDTH \| :P4W | 0 to 1.95. Not Valid for Mode A, Mode C and Mode S. |
| | :P5WIDTH \| :P5W | 0.2 to 1.95. Not Valid for Mode S. |
| | :P6ENDWIDTH \| :P6ENDW | 0 to 0.95. Valid only for Mode S. |
| | :P1POWER \| :P1P | -19 to 9 \| CAL \| OFF. Not Valid for Mode S. |
| | :P2POWER \| :P2P | -19 to 9 \| CAL \| OFF. Not Valid for Mode S. |
| | :P3POWER \| :P3P | -19 to 9 \| CAL \| OFF. Not Valid for Mode S. |
| | :P4POWER \| :P4P | -19 to 9 \| CAL \| OFF. Not Valid for Mode A, Mode C and Mode S. |
| | :P5POWER \| :P5P | -19 to 9 \| CAL \| OFF. Valid only for Mode S. |
| | :P12SPACING \| :P12S | Mode A \| Mode A Only All Call \| Mode A/Mode S |
| | | All Call \| Mode C \| Mode C Only All Call \| Mode C/ Mode S All Call 0.05 to 3.95 Mode S 1.0 to 3.0 |
| | :P13SPACING \| :P13S | Mode A \| Mode A Only All Call 7.0 to 9.0 \| Mode |
| | | A/Mode S All Call 6.05 to 9.95 Mode C \| Mode C Only All Call \| Mode C/Mode S All Call 19.05 to 22.95. Not Valid for Mode S. |
| | :P34SPACING \| :P34 | Mode A Only All Call \| Mode A/Mode S All Call \| |
| | | Mode C Only All Call \| Mode C/Mode S All Call 0.05 to 3.95. Not Valid for Mode A, Mode C and Mode S. |
| | :P16SPACING \| :P16S | 1.55 to 5.45. Valid only for Mode S. |
| | :P1SPRSPACING \| :P1SPS | 3.75 to 5.75. Valid only for Mode S. |
| | :P15SPACING \| :P15S | 2.4 to 6.3. Valid only for Mode S. |
| **Example:** | :RGS:XPDR:ITABLE:2:PUL:P1W 1.5\r | |
| **Query:** | :RGS:XPDR:ITABLE:2:PUL:P1W?\r | |
| **Returns:** | 1.500 | |

#### 5.11.17.3.11 Table Entry Side Lobe Suppression (SLS)

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:ITABLE:}<table entry>{:SLS}SP{ON \| OFF}CR |
| **Description:** | This command turns on or off SLS (P2) pulse in an ATCRBS interrogation of the selected table entry. |
| **Table Entry:** | 1 to 1000 (decimal ASCII) |
| **Default:** | Off |
| **Example:** | :RGS:XPDR:ITABLE:1:SLS ON\r |
| **Query:** | :RGS:XPDR:ITABLE:1:SLS?\r |
| **Return:** | ON |

#### 5.11.17.3.12 Table Entry Synchronization

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:ITABLE}{:SYNC}SP<numeric>CR |
| **Description:** | This command allows selecting the table entry for synchronization. The measured UUT values are obtained from the reply associated with the interrogation selected for synchronization. |
| **Numeric:** | 1 to 32 (decimal ASCII) |
| **Default:** | 1. |
| **Example:** | :RGS:XPDR:ITABLE:SYNC 2\r |
| **Query:** | :RGS:XPDR:ITABLE:SYNC?\r |
| **Return:** | 2 |

### 5.11.17.4 Single Interrogation

This set of commands allows the user to define single ATCRBS or Mode S interrogations.

#### 5.11.17.4.1 Antenna Power Deviation

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:ANT \| :ANTENNA}{:POW \| :POWER}SP<numeric>[,<numeric1>]CR |
| **Description:** | This command sets the antenna power deviation between the top and bottom antenna. The optional <numeric1> is ignored if the interrogation mode is not “Alternate Mode A/Mode C.” For “Alternate Mode A/Mode C”, the <numeric> is used to define the Mode A pulse and the <numeric1> is used to define the Mode C pulse. |
| **Numeric:** | 0 to -20 dB (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:XPDR:ANT:POW -3\r |
| **Query:** | :RGS:XPDR:ANT:POW?\r |
| **Return:** | -3.0 |
| **Example:** | (Alternate Mode A/Mode C)<br>:RGS:XPDR:ANT:POW -3,-4\r |
| **Query:** | :RGS:XPDR:ANT:POW?\r |
| **Return:** | -3.0,-4.0 |

### 5.11.17.4.2 Antenna Time Deviation

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:ANT \| :ANTENNA}{:TIM \| :TIME}SP<numeric>[,<numeric1>]CR |
| **Description:** | This command sets the antenna time deviation between the top and bottom antenna. The optional <numeric1> is ignored if the interrogation mode is not “Alternate Mode A/Mode C.” For “Alternate Mode A/Mode C”, the <numeric> is used to define the Mode A pulse and the <numeric1> is used to define the Mode C pulse. |
| **Numeric:** | -1.0 to 1.0 μs (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:XPDR:ANT:TIM 0.8\r |
| **Query:** | :RGS:XPDR:ANT:TIM?\r |
| **Return:** | 0.8 |
| **Example:** | (Alternate Mode A/Mode C)<br>:RGS:XPDR:ANT:TIM -0.5,0.5\r |
| **Query:** | :RGS:XPDR:ANT:TIM?\r |
| **Return:** | -0.5,0.5 |

### 5.11.17.4.3 Interrogation Mode

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:MOD \| :MODE}SP<numeric>CR | |
| **Description:** | This command sets the transponder interrogation type for Single Interrogation Mode.. | |
| **Numeric:** | 0 to 11 (decimal ASCII) | |
| | **Value** | **Mode** |
| | 0 | Mode A |
| | 1 | Mode C |
| | 2 | Mode A Only All Call |
| | 3 | Mode C Only All Call |
| | 4 | Mode A/Mode S All Call |
| | 5 | Mode C/Mode S All Call |
| | 6 | Mode S |
| | 7 | P1 to P2 |
| | 8 | Pulse |
| | 9 | DME 12 μs Spacing |
| | 10 | DME 30 μs Spacing |
| | 11 | Alternate Mode A/Mode C |
| **Default:** | 0 | |
| **Example:** | :RGS:XPDR:MOD 6\r | |
| **Query:** | See Transponder Queries | |
| **NOTE:** | This command must be sent before defining the pulse parameters. | |

### 5.11.17.4.4 Mode S Interrogation Message Data

<table>
<tr><td>Command Syntax:</td><td>{:RGS | :RGS2000NG}{:XPDR}{:UF}SP<numeric>CR</td></tr>
<tr><td>Description:</td><td>This command sets the data message for the Mode S Interrogation.</td></tr>
<tr><td>Numeric:</td><td>Short interrogation 0 to FFFFFFFFFFFFFF (14 hexadecimal ASCII)</td></tr>
<tr><td></td><td>Long interrogation 0 to FFFFFFFFFFFFFFFFFFFFFFFFFFFF ( 28 hexadecimal ASCII). The last six characters are the Mode S Address.</td></tr>
<tr><td>Default:</td><td>00000000000001</td></tr>
<tr><td>Example:</td><td>:RGS:XPDR:UF 123456789ABCDE\r</td></tr>
<tr><td>Query:</td><td>:RGS:XPDR:UF?\r</td></tr>
<tr><td>Return:</td><td>123456789ABCDE</td></tr>
</table>

### 5.11.17.4.5 Pulse Parameter

<table>
<tr><td>Command Syntax:</td><td colspan="2">{:RGS | :RGS2000NG}{:XPDR}{:PUL: | :PULSE:}<pulse>SP<value>[,<value1>]CR</td></tr>
<tr><td>Description:</td><td colspan="2">This command sets the selected pulse parameter. The optional <value1> is ignored if the interrogation mode is not “Alternate Mode A/Mode C.” For “Alternate Mode A/Mode C”, the <value> is used to define the Mode A pulse and the <value1> is used to define the Mode C pulse.</td></tr>
<tr><td>Pulse/Value:</td><td><pulse></td><td><value> | <value1></td></tr>
<tr><td></td><td>:PALLWIDTH | :PALLW</td><td>0 to 1.95</td></tr>
<tr><td></td><td>:P1WIDTH | :P1W</td><td>0 to 1.95</td></tr>
<tr><td></td><td>:P2WIDTH | :P2W</td><td>0 to 1.95</td></tr>
<tr><td></td><td>:P3WIDTH | :P3W</td><td>0 to 1.95. Not Valid for Mode S.</td></tr>
<tr><td></td><td>:P4WIDTH | :P4W</td><td>0 to 1.95. Not Valid for Mode A, Mode C and Mode S.</td></tr>
<tr><td></td><td>:P5WIDTH | :P5W</td><td>0.2 to 1.95. Valid only for Mode S.</td></tr>
<tr><td></td><td>:P6ENDWIDTH | :P6ENDW</td><td>0 to 0.95. Valid only for Mode S.</td></tr>
<tr><td></td><td>:P1POWER | :P1P</td><td>-19 to 9 | CAL | OFF. Not Valid for Mode S.</td></tr>
<tr><td></td><td>:P2POWER | :P2P</td><td>-19 to 9 | CAL | OFF. Not Valid for Mode S.</td></tr>
<tr><td></td><td>:P3POWER | :P3P</td><td>-19 to 9 | CAL | OFF. Not Valid for Mode S.</td></tr>
<tr><td></td><td>:P4POWER | :P4P</td><td>-19 to 9 | CAL | OFF. Not Valid for Mode A, Mode C and Mode S.</td></tr>
<tr><td></td><td>:P5POWER | :P5P</td><td>-19 to 9 | CAL | OFF. Valid only for Mode S.</td></tr>
<tr><td></td><td>:P12SPACING | :P12S</td><td>Mode A | Mode A Only All Call | Mode A/Mode</td></tr>
<tr><td></td><td></td><td>S All Call | Mode C | Mode C Only All Call |Mode S All Call 0.05 to 3.95 Mode S 1.0 to 3.0 Mode C/Mode S All Call 0.05 to 3.95 Mode S 1.0 to 3.0</td></tr>
<tr><td></td><td>:P13SPACING | :P13S</td><td>Mode A | Mode A Only All Call 7.0 to 9.0 |</td></tr>
<tr><td></td><td></td><td>Mode A/Mode S All Call 6.05 to 9.95 Mode C |Mode C Only All Call | Mode C/Mode S All Call 19.05 to 22.95. Not Valid for Mode S.</td></tr>
<tr><td></td><td>:P34SPACING | :P34S</td><td>Mode A Only All Call | Mode A/Mode S All Call</td></tr>
<tr><td></td><td></td><td>Mode C Only All Call | Mode C/Mode S All Call 0.05 to 3.95. Not Valid for Mode A, Mode C and Mode S.</td></tr>
<tr><td></td><td>:P16SPACING | :P16S</td><td>1.55 to 5.45. Valid only for Mode S.</td></tr>
<tr><td></td><td>:P1SPRSPACING | :P1SPS</td><td>3.75 to 5.75. Valid only for Mode S.</td></tr>
<tr><td></td><td>:P15SPACING | P15S</td><td>2.4 to 6.3. Valid only for Mode S.</td></tr>
<tr><td>Example:</td><td colspan="2">:RGS:XPDR:PUL:P1P -9\r</td></tr>
<tr><td>Query:</td><td colspan="2">:RGS:XPDR:PUL:P1P?\r</td></tr>
<tr><td>Return:</td><td colspan="2">-9.0</td></tr>
<tr><td>Example:</td><td colspan="2">(Alternate Mode A/Mode C)<br>:RGS:XPDR:PUL:P1P -9,-3\r</td></tr>
<tr><td>Query:</td><td colspan="2">:RGS:XPDR:PUL:P1P?\r</td></tr>
<tr><td>Return:</td><td colspan="2">-9.0,-3.0</td></tr>
</table>

#### 5.11.17.4.6 Pulse Repetition Frequency (PRF)

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:PRF }SP<numeric>CR |
| **Description:** | This command sets the pulse repetition rate (PRF). |
| **Numeric:** | 1 to 10000 (decimal ASCII) |
| **Default:** | 100 |
| **Example:** | :RGS:XPDR:PRF 150\r |
| **Query:** | :RGS:XPDR:PRF?\r |
| **Return:** | 150 |

#### 5.11.17.4.7 Pulse Width

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:PWIDTH \| :PW }SP<numeric>CR |
| **Description:** | This command sets the pulse width. |
| **Numeric:** | 0 to 5 μs (decimal ASCII) |
| **Default:** | 0 |
| **Example:** | :RGS:XPDR:PW 1\r |
| **Query:** | :RGS:XPDR:PW?\r |
| **Return:** | 1.000 |
| **NOTE:** | This command is valid only for the transponder interrogation mode Pulse. |

#### 5.11.17.4.8 PRF Synchronization

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:PRFSYNC}SP{ON \| OFF}CR |
| **Description:** | This command turns on or off the synchronization output. |
| **Default:** | Off |
| **Example:** | :RGS:XPDR:PRFSYNC ON\r |
| **Query:** | :RGS:XPDR:PRFSYNC?\r |
| **Return:** | ON |
| **NOTE:** | This command is valid only for the following transponder interrogation modes: P1 to P2, Pulse, DME 12 μs Spacing and DME 30 μs Spacing. |

#### 5.11.17.4.9 Side Lobe Suppression (SLS)

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:SLS}SP{ON \| OFF}[,{ON \| OFF}]CR |
| **Description:** | This command turns on or off SLS (P2) pulse in an ATCRBS interrogation. The optional {ON \| OFF} is ignored if the interrogation mode is not “Alternate Mode A/Mode C.” For “Alternate Mode A/Mode C”, the first {ON \| OFF} is used to define the Mode A pulse and the second (or the optional) is used to define the Mode C pulse. |
| **Default:** | Off |
| **Example:** | :RGS:XPDR:SLS ON\r |
| **Query:** | :RGS:XPDR:SLS?\r |
| **Return:** | ON |
| **Example:** | (Alternate Mode A/Mode C)<br>:RGS:XPDR:SLS ON,ON\r |
| **Query:** | :RGS:XPDR:SLS?\r |
| **Return:** | ON,ON |

### 5.11.17.5 Transponder Queries

#### 5.11.17.5.1 Altitude Reply Request

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:AREPLY? \| :AREP? } CR |
| **Description:** | This command returns the reply altitude. |
| **Return Value:** | Decimal value in ASCII.<br>If the Unit is not ready to return an answer, “#” is returned. |
| **Example:** | :RGS:XPDR:AREP?\r |
| **Return:** | 28800 |

#### 5.11.17.5.2 Mode A Code Reply Request

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:CREPLY? \| :CREP? } CR |
| **Description:** | This command returns the reply code. |
| **Return Value:** | Decimal value in ASCII. |
| | If the Unit is not ready to return an answer, “#” is returned. |
| **Example:** | :RGS:XPDR:CREP?\r |
| **Return:** | 1240 |

### 5.11.17.5.3 Mode Request

| | | |
|---|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:MOD? \| :MODE?} CR | |
| **Description:** | This command replies with the current transponder interrogation mode. | |
| | **Reply** | **Mode** |
| | A | Single Interrogation - Mode A |
| | AC | Single Interrogation - Alternating Mode A/Mode C |
| | ACLA | Single Interrogation - Mode A/Mode S All Call |
| | ACLC | Single Interrogation - Mode C/Mode S All Call |
| | ACS | Single Interrogation - Mode A Only All Call |
| | ACSA | Single Interrogation - Mode A/Mode S All Call |
| | ACSC | Single Interrogation - Mode C Only All Call |
| | BLOCK | Block Transmission |
| | C | Single Interrogation - Mode C |
| | DBL | Double Interrogation |
| | DME1 | Single Interrogation - DME 12 μs Spacing |
| | DME2 | Single Interrogation - DME 30 μs Spacing |
| | ITABLE | Interrogation Table |
| | P1P2 | Single Interrogation - P1 to P2 |
| | PULSE | Single Interrogation - Pulse |
| | S | Single Interrogation - Mode S |
| **Example:** | :RGS:XPDR:MOD?\r | |
| **Return:** | AC | |

### 5.11.17.5.4 Number of Interrogation Requests

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:NINTERR? } CR |
| **Description:** | This command returns the number of interrogations top and number interrogations bottom. |
| **Return Value:** | Decimal value in ASCII. |
| **Example:** | :RGS:XPDR:NINTERR?\r |
| **Return:** | 400, 0 |

#### 5.11.17.5.5 Percent Reply Request

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:PREPLY? \| :PREP? } CR |
| **Description:** | This command returns the percent reply. |
| | If in Mode S, returns percent reply top and percent reply bottom separated by comma. |
| | If in ATCRBS, returns percent reply ATCRBS top, percent reply ATCRBS bottom, percent reply Mode S top and percent reply Mode S bottom separated by comma. |
| **Return Value:** | Decimal value in ASCII. |
| | If the Unit is not ready to return an answer, "#" is returned separated by comma. |
| **Example:** | :RGS:XPDR:PREP?\r |
| **Return (Mode S):** | 50.0,0.0 |
| **Return (ATCRBS):** | 50.0,0.0,0.0,0.0 |

#### 5.11.17.5.6 Reply Delay Request

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:DREPLY? \| :DREP? } CR |
| **Description:** | This command returns the reply delay. |
| **Return Value:** | Decimal value in ASCII. |
| | If the Unit is not ready to return an answer, "#" is returned. |
| **Example:** | :RGS:XPDR:DREP?\r |
| **Returns:** | 3.302 |

#### 5.11.17.5.7 Reply Jitter Request

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:XPDR}{:JREPLY? \| :JREP? } CR |
| **Description:** | This command returns the reply jitter. |
| **Return Value:** | Decimal value in ASCII. |
| | If the Unit is not ready to return an answer, "#" is returned. |
| **Example:** | :RGS:XPDR:JREP?\r |
| **Returns:** | 3 |

## 5.12 UNIT COMMANDS

### 5.12.1 HARDWARE VERSION REQUEST

| | |
|---|---|
| **Command Syntax:** | {:RGS \|:RGS2000NG}{:HW?}CR |
| **Description:** | This command returns the hardware version of the unit. |
| **Return Value:** | ASCII value. |
| **Example:** | :RGS:HW?\r |
| **Return:** | 20 |

### 5.12.2 LAST CALIBRATION DATE

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:LASTCAL?}CR |
| **Description:** | This command returns the last calibration date of the Unit. |
| **Return Value:** | ASCII value |
| **Example:** | :RGS:LASTCAL?\r |
| **Return:** | 10/10/2011 10:27:30 AM – Pass |

### 5.12.3 MODE OF OPERATION

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:ACCESS} SP{RMT \| REMOTE \| LCL \| LOCAL}CR |
| **Description:** | This command sets the mode of operation of the Unit. |
| **Example:** | :RGS:ACCESS RMT\r |

### 5.12.4 ATE LINE SOURCE

| | |
|---|---|
| **Command Syntax:** | {:RGS \|:RGS2000NG}{:ATE \|:ATELINE}{:SOURCE}SP{DIRECT \| ATEBOX}CR |
| **Description:** | This command sets the ATE Lines source selection. This selection is found on the TCAS ATE Lines Menu. |
| **Default:** | DIRECT |
| **Example:** | :RGS:ATELINES:SOURCE DIRECT\r |
| **NOTE:** | This selection persists through a Reset or power cycle. |

### 5.12.5 PART NUMBER

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:PN?}CR |
| **Description:** | This command returns the part number of the Unit. |
| **Return Value:** | ASCII value. |
| **Example:** | :RGS:PN?\r |
| **Return:** | 113956 |

### 5.12.6 PRODUCT KEY

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:PKEY?}CR |
| **Description:** | This command returns the product key of the Unit. |
| **Return Value:** | ASCII value. |
| **Example:** | :RGS:PKEY?\r |
| **Return:** | 4AACC-3311F-0014F-94819-A5563-1225044 |

### 5.12.7 RESET

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:RESET}CR |
| **Description:** | This command executes a global reset to the Unit. This global reset includes the following tasks: |
| | 1. Stop any execution. |
| | 2. Reset RTCA/DO-260 Test. |
| | 3. Reset Block Transmission Test. |
| | 4. Reset Transponder Test. |
| | 5. Reset Own Aircraft Position. Set the Own Aircraft Latitude, Longitude, Heading and Altitude to zero. Set the Own Aircraft Mode S Address to 4. |
| | 6. Reset Scenario. |
| | 7. Sets the Unit to the factory default settings. |
| **Return:** | ”*” is returned if the factory settings were able to complete successfully.<br>“?” is returned if a failure occurs. |
| **Example:** | :RGS:RESET\r |
| **NOTE:** | This command takes approximately 10 seconds to complete before returning the asterisk. |

### 5.12.8 SERIAL NUMBER REQUEST

| | |
|---|---|
| **Command Syntax:** | {:RGS \|:RGS2000NG}{:SN?}CR |
| **Description:** | This command returns the serial number of the unit. |
| **Return Value:** | ASCII value. |
| **Example:** | :RGS:SN?\r |
| **Return:** | 10000000002 |

### 5.12.9 SOFTWARE VERSION REQUEST

| | |
|---|---|
| **Command Syntax:** | {:RGS \|:RGS2000NG}{:SW?}CR |
| **Description:** | This command returns the software version of the unit. |
| **Return Value:** | Hexadecimal value. |
| **Example:** | :RGS:SW?\r |
| **Return:** | 1A |

### 5.12.10 UNIT NAME

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:NAME?}CR |
| **Description:** | This command returns the Unit name. |
| **Return Value:** | ASCII value. |
| **Example:** | :RGS:NAME?\r |
| **Returns:** | RGSSN10000000002 |

### 5.12.11 VERSIONS

| | |
|---|---|
| **Command Syntax:** | {:RGS \| :RGS2000NG}{:VERSIONS?}CR |
| **Description:** | This command returns the firmware versions. |
| **Return Value:** | ASCII Value in the following format: |
| | <User Interface Version>,<Server Version>,<Receiver DSP Version>,<Receiver FPGA Version>,<Transmitter DSP Version>,<Transmitter FPGA Version>,<Receiver Module #1 FPGA Version>,<Receiver Module #2 FPGA Version>,<Transmitter Module #1 FPGA Version>,<Transmitter Module #2 FPGA Version>,<Transmitter Module #3 FPGA Version>,<Antenna Simulator/Switch Assembly FPGA Version> |
| **Example:** | :RGS:VERSIONS?\r |
| **Returns:** | 11.10.1701,11.10.1701,2.G,1.X,3.1,3.5,2.0,2.0,2.Q,2.Q,2.Q,3.3 |

## 5.13 EXAMPLES

### 5.13.1 SCENARIO TEST

The following example creates a scenario test with two static intruders, two dynamic intruders, two ground stations and two video blocks.

//Begin Scenario Test

**Own Aircraft Definition Example**

```
:RGS:OWN:LAT 25.91338
:RGS:OWN:LONG -80.3330058
:RGS:OWN:HEAD 0
:RGS:OWN:ALT 12000
:RGS:OWN:MSADDR 4
```

**Scenario Definition Example**

```
:RGS:SCE:RESET
:RGS:SCE:TIME 3000
:RGS:SCE:STATIC:QUANTITY 2
:RGS:SCE:DYNAMIC:QUANTITY 2
:RGS:SCE:INTERROGATOR:QUANTITY 2
:RGS:SCE:VDB:QUANTITY 2
:RGS:SCE:FRUIT OFF
:RGS:SCE:ATELINE OFF
:RGS:SCE:COORDINATION 10000
:RGS:SCE:SLANT ON
:RGS:SCE:OWNSOURCE MANUAL
:RGS:SCE:POWER LO
:RGS:SCE:ANTENNA DUAL
:RGS:SCE:SPACING 200
:RGS:SCE:VDB:RESOLUTION 50
:RGS:SCE:WAYPOINTS:MODE POSITION
```

**Static Intruder Definition Example #1**

```
//Static Intruder Number 1
:RGS:SCE:STATIC:1:MODE EXTENDED
:RGS:SCE:STATIC:1:ENABLE ON
:RGS:SCE:STATIC:1:BEGIN 0
:RGS:SCE:STATIC:1:END 3000
:RGS:SCE:STATIC:1:MSADDR 2
:RGS:SCE:STATIC:1:GROUND OFF
:RGS:SCE:STATIC:1:PPRPLY 1
:RGS:SCE:STATIC:1:PPSQ 1
//0 By Default, [0,2], 1-GenA 2-GenC 3-GenD
:RGS:SCE:STATIC:1:RPLYCH 1
:RGS:SCE:STATIC:1:ALTITUDE 12000
:RGS:SCE:STATIC:1:BEARING 135
```

```
:RGS:SCE:STATIC:1:RANGE 5
:RGS:SCE:STATIC:1:RPLYANT ALTITUDE
:RGS:SCE:STATIC:1:SQANT BOTH
:RGS:SCE:STATIC:1:SQPWR -50
:RGS:SCE:STATIC:1:RPLYPWR -20
:RGS:SCE:STATIC:1:VELOCITY 150
:RGS:SCE:STATIC:1:VERTICAL 0
:RGS:SCE:STATIC:1:TRACK 0
:RGS:SCE:STATIC:1:CC OFF
:RGS:SCE:STATIC:1:SL 0
:RGS:SCE:STATIC:1:RI:AQ0 0
:RGS:SCE:STATIC:1:RI:AQ1 0
:RGS:SCE:STATIC:1:RI:DF16 0
:RGS:SCE:STATIC:1:CA 0
:RGS:SCE:STATIC:1:UM 0
:RGS:SCE:STATIC:1:DR 0
:RGS:SCE:STATIC:1:FS 0
//0 By Default, 0 - Subtype 0 - Reserved, Valid only for Extended & TIS-B
//    1 - Groundspeed Normal
//    2 - Groundspeed Supersonic
//    3 - Airspeed Heading Normal
//    4 - Airspeed Heading Supersonic
//    5 - Subtype 5 - Reserved
//    6 - Subtype 6 - Reserved
//    7 - Subtype 7 - Reserved
:RGS:SCE:STATIC:1:VELTYPE 0
//STAT001 By Default, Alphanumeric digits
:RGS:SCE:STATIC:1:IDENT STAT001
//1 By Default, [1,4], valid only for Extended & TIS-B
:RGS:SCE:STATIC:1:IDENTTYPE 1
//- By Default, {-, A, B}, valid only for Extended
:RGS:SCE:STATIC:1:DO260 –
```

**Intruder BDS Definition Example #1**

```
//BDS hexadecimal, [0,255], MESSAGE hexadecimal 14 digits, MV field 56 Bits
:RGS:SCE:STATIC:1:MODE EXTENDED
:RGS:SCE:STATIC:1:BDS:07:MESSAGE 80180000000000
:RGS:SCE:STATIC:1:BDS:0B:MESSAGE 80180000000000
```

**Intruder Coordination Definition Example #1**

//no valid for ATCRBS & TIS-B

:RGS:SCE:STATIC:1:MODE TCAS

:RGS:SCE:STATIC:1:COORDINATION:NINTERVALS 2

//Intruder Start Time By Default, [Intruder Start Time, Intruder Stop Time]

:RGS:SCE:STATIC:1:COORDINATION:INTERVAL:1:BEGIN 0

//Intruder Stop Time By Default, [Intruder Start Time, Intruder Stop Time], stop >= start

:RGS:SCE:STATIC:1:COORDINATION:INTERVAL:1:END 30

//ON By Default

:RGS:SCE:STATIC:1:COORDINATION:INTERVAL:1:ENABLE ON

:RGS:SCE:STATIC:1:COORDINATION:INTERVAL:1:RL 0

:RGS:SCE:STATIC:1:COORDINATION:INTERVAL:1:AQ 0

:RGS:SCE:STATIC:1:COORDINATION:INTERVAL:1:INTRUDER YES

//hexadecimal 14 digits, MU 56 Bits

:RGS:SCE:STATIC:1:COORDINATION:INTERVAL:1:MU 30000000000002

:RGS:SCE:STATIC:1:COORDINATION:INTERVAL:2:BEGIN 30;:INTERVAL:2:END 60; :INTERVAL:2:ENABLE ON;:RL 1;:AQ 1;:INTRUDER YES;:MU 30000000000002

**Intruder Broadcast Definition Example #1**

//no valid for ATCRBS & TIS-B

:RGS:SCE:STATIC:1:BROADCAST:NINTERVALS 2

:RGS:SCE:STATIC:1:BROADCAST:INTERVAL:1:BEGIN 0

:RGS:SCE:STATIC:1:BROADCAST:INTERVAL:1:END 30

:RGS:SCE:STATIC:1:BROADCAST:INTERVAL:1:ENABLE ON

:RGS:SCE:STATIC:1:BROADCAST:INTERVAL:1:RL 0

:RGS:SCE:STATIC:1:BROADCAST:INTERVAL:1:AQ 0

:RGS:SCE:STATIC:1:BROADCAST:INTERVAL:1:MU 32000000000002

:RGS:SCE:STATIC:1:BROADCAST:INTERVAL:2:BEGIN 30;:INTERVAL:2;:END 60;:INTERVAL:2:ENABLE ON;:RL 1;:AQ 1;:MU 32000000000002

**Intruder Coordination Reply (DF16) Definition Example #1**

:RGS:SCE:STATIC:1:RDF16:NINTERVALS 2

:RGS:SCE:STATIC:1:RDF16:INTERVAL:1:BEGIN 0

:RGS:SCE:STATIC:1:RDF16:INTERVAL:1:END 30

:RGS:SCE:STATIC:1:RDF16:INTERVAL:1:ENABLE ON

:RGS:SCE:STATIC:1:RDF16:INTERVAL:1:MV 30000000000000

:RGS:SCE:STATIC:1:RDF16:INTERVAL:2:BEGIN 30; :INTERVAL:2:END 60; :INTERVAL:2:ENABLE ON;:MV 30000000000000

**Intruder UF0 Definition Example #1**

//no valid for ATCRBS & TIS-B

:RGS:SCE:STATIC:1:UF0:NINTERVALS 2

:RGS:SCE:STATIC:1:UF0:INTERVAL:1:BEGIN 0

:RGS:SCE:STATIC:1:UF0:INTERVAL:1:END 30

:RGS:SCE:STATIC:1:UF0:INTERVAL:1:ENABLE ON

:RGS:SCE:STATIC:1:UF0:INTERVAL:1:RL 0

:RGS:SCE:STATIC:1:UF0:INTERVAL:1:AQ 0

//0 By Default, hexadecimal, [0,0xFF]

:RGS:SCE:STATIC:1:UF0:INTERVAL:1:BDS 0A

:RGS:SCE:STATIC:1:UF0:INTERVAL:2:BEGIN 30; :INTERVAL:2:END 60; :INTERVAL:2:ENABLE ON;:RL 0;:AQ

0;:BDS 08

**Static Intruder Definition Example #2**

:RGS:SCE:STATIC:2:MODE TIS-B

:RGS:SCE:STATIC:2:ENABLE ON

:RGS:SCE:STATIC:2:BEGIN 0

:RGS:SCE:STATIC:2:END 3000

:RGS:SCE:STATIC:2:MSADDR 2

:RGS:SCE:STATIC:2:GROUND OFF

:RGS:SCE:STATIC:2:PPSQ 1

//0 By Default, [0,2], 1-GenA 2-GenC 3-GenD

:RGS:SCE:STATIC:2:RPLYCH 1

:RGS:SCE:STATIC:2:ALTITUDE 12000

:RGS:SCE:STATIC:2:BEARING 135

:RGS:SCE:STATIC:2:RANGE 5

:RGS:SCE:STATIC:2:RPLYANT ALTITUDE

:RGS:SCE:STATIC:2:SQANT BOTH

:RGS:SCE:STATIC:2:SQPWR -50

:RGS:SCE:STATIC:2:RPLYPWR -20

:RGS:SCE:STATIC:2:VELOCITY 150

:RGS:SCE:STATIC:2:VERTICAL 0

:RGS:SCE:STATIC:2:TRACK 0

:RGS:SCE:STATIC:2:CA 0

:RGS:SCE:STATIC:2:UM 0

:RGS:SCE:STATIC:2:DR 0

:RGS:SCE:STATIC:2:FS 0

:RGS:SCE:STATIC:2:VELTYPE 0

:RGS:SCE:STATIC:2:IDENT STAT002

//1 By Default, [1,4], valid only for Extended & TIS-B

:RGS:SCE:STATIC:2:IDENTTYPE 1

//0 By Default [0,7], No Valid for ATCRBS (ignored)

```
:RGS:SCE:DYNAMIC:1:FS 0
```

**Dynamic Intruder Definition Example #1**

```
//TCAS By Default
:RGS:SCE:DYNAMIC:1:MODE TCAS
:RGS:SCE:DYNAMIC:1:ENABLE ON
//0 By Default, [0, Scenario Time]
:RGS:SCE:DYNAMIC:1:BEGIN 0
//Scenario Time By Default, [0, Scenario Time], stop >= start
:RGS:SCE:DYNAMIC:1:END 3000
:RGS:SCE:DYNAMIC:1:MSADDR 1
//OFF by Default, No Valid for ATCRBS
:RGS:SCE:DYNAMIC:1:GROUND OFF
//1 by Default, {0,0.2,0.4,0.6,0.8,1}, No valid for TIS-B (ignored)
:RGS:SCE:DYNAMIC:1:PPRPLY 1
//1 By Default, {0,0.2,0.4,0.6,0.8,1}, No Valid for ATCRBS (ignored)
:RGS:SCE:DYNAMIC:1:PPSQ 1
//0 By Default, [0,2], 1-GenA 2-GenC 3-GenD
:RGS:SCE:DYNAMIC:1:RPLYCH 1
//1000 By Default
:RGS:SCE:DYNAMIC:1:ALTITUDE 12000
:RGS:SCE:DYNAMIC:1:BEARING 135
:RGS:SCE:DYNAMIC:1:RANGE 5
//ALTITUDE By Default, No valid for ATCRBS & TIS-B
:RGS:SCE:DYNAMIC:1:RPLYANT ALTITUDE
//BOTH By Default, No Valid for ATCRBS (ignored)
:RGS:SCE:DYNAMIC:1:SQANT BOTH
//-50 dBm By Default, No Valid for ATCRBS (ignored)
:RGS:SCE:DYNAMIC:1:SQPWR -50
//-20 dBm By Default
:RGS:SCE:DYNAMIC:1:RPLYPWR -20
//Binary By Default, No valid for ATCRBS (ignored)
:RGS:SCE:DYNAMIC:1:AMODE BINARY
:RGS:SCE:DYNAMIC:1:VELOCITY 150
:RGS:SCE:DYNAMIC:1:VERTICAL 0
:RGS:SCE:DYNAMIC:1:TRACK 0
:RGS:SCE:DYNAMIC:1:CC OFF
//0 By Default [0,7], No Valid for ATCRBS & TIS-B (ignored)
:RGS:SCE:DYNAMIC:1:SL 0
//0 BY Default [0,7], No Valid for ATCRBS & TIS-B (ignored)
:RGS:SCE:DYNAMIC:1:RI:AQ0 0
//0 By Default [0,7], No Valid for ATCRBS & TIS-B (ignored)
:RGS:SCE:DYNAMIC:1:RI:AQ1 0
```

```
//0 By Default [0,15], No Valid for ATCRBS & TIS-B (ignored)
:RGS:SCE:DYNAMIC:1:RI:DF16 0
//0 By Default [0,7], No Valid for ATCRBS (ignored)
:RGS:SCE:DYNAMIC:1:CA 0
//0 By Default [0,63], No Valid for ATCRBS (ignored)
:RGS:SCE:DYNAMIC:1:UM 0
//0 By Default [0,31], No Valid for ATCRBS (ignored)
:RGS:SCE:DYNAMIC:1:DR 0
//0 By Default [0,7], No Valid for ATCRBS (ignored)
:RGS:SCE:DYNAMIC:1:FS 0
Intruder Waypoint Definition Example #1
//Intruder Waypoints By Position Definition.  Valid only for dynamic intruders
:RGS:SCE:WAYPOINTS:MODE POSITION
:RGS:SCE:DYNAMIC:1:WAYPOINTS:NPOSITIONS 2
//Intruder Altitude By Default
:RGS:SCE:DYNAMIC:1:WAYPOINTS:POSITION:1:ALTITUDE 12000
//Intruder Latitude By Default
:RGS:SCE:DYNAMIC:1:WAYPOINTS:POSITION:1:LATITUDE 0.04
//Intruder Longitude By Default
:RGS:SCE:DYNAMIC:1:WAYPOINTS:POSITION:1:LONGITUDE 0.0
:RGS:SCE:DYNAMIC:1:WAYPOINTS:POSITION:1:ENABLE ON
:RGS:SCE:DYNAMIC:1:WAYPOINTS:POSITION:1:PARAMETER VELOCITY,360
:RGS:SCE:DYNAMIC:1:WAYPOINTS:POSITION:1:PARAMETER REPLY,OFF
:RGS:SCE:DYNAMIC:1:WAYPOINTS:POSITION:2:ALTITUDE 12000; :POSITION:2:LATITUDE 0.08;
:POSITION:2:LONGITUDE 0.0; :POSITION:2:ENABLE ON;:PARAMETER VELOCITY,160;:PARAMETER
REPLY,ON
```

**Intruder One Shot Definition Example #1**

```
// Valid only for Mode-S TCAS Only
:RGS:SCE:DYNAMIC:1:ONESHOT:NMESSAGES 2
//Intruder Start Time by Default, [Intruder Start Time, Intruder Stop Timer]
:RGS:SCE:DYNAMIC:1:ONESHOT:MESSAGE:1:TIME 10
:RGS:SCE:DYNAMIC:1:ONESHOT:MESSAGE:1:ENABLE ON
//hexadecimal 8|22 digits, 32|88 Bits, remove AP|Parity (last 24 Bits)
:RGS:SCE:DYNAMIC:1:ONESHOT:MESSAGE:1:DF 20000000
:RGS:SCE:DYNAMIC:1:ONESHOT:MESSAGE:2:TIME 20; :MESSAGE:2:ENABLE ON;:UF
8000000030000000000000
```

**Dynamic Intruder Definition Example #2**

```
//Dynamic Intruder Number 2
:RGS:SCE:DYNAMIC:2:MODE ATCRBS
:RGS:SCE:DYNAMIC:2:ENABLE ON
:RGS:SCE:DYNAMIC:2:BEGIN 0
:RGS:SCE:DYNAMIC:2:END 3000
//ALTITUDE & FORWARD By Default
:RGS:SCE:DYNAMIC:2:WS1:1:RPLYANT ALTITUDE;:RPLYQUAD FORWARD
:RGS:SCE:DYNAMIC:2:WS2:2:RPLYANT ALTITUDE;:RPLYQUAD FORWARD
:RGS:SCE:DYNAMIC:2:PPRPLY 1
:RGS:SCE:DYNAMIC:2:RPLYCH 1
:RGS:SCE:DYNAMIC:2:ALTITUDE 12000
:RGS:SCE:DYNAMIC:2:BEARING 135
:RGS:SCE:DYNAMIC:2:RANGE 5
:RGS:SCE:DYNAMIC:2:RPLYPWR -20
:RGS:SCE:DYNAMIC:2:VELOCITY 150
:RGS:SCE:DYNAMIC:2:VERTICAL 0
:RGS:SCE:DYNAMIC:2:TRACK 0
//0000 By Default, Octal Digits, PadLeft(4, '0'), only valid for ATCRBS (ignored for rest)
:RGS:SCE:DYNAMIC:2:ACODE 1234
//ON By Default, only valid for ATCRBS (ignored for the rest)
:RGS:SCE:DYNAMIC:2:ALTRPT ON
Interrogator (Ground Station) Definition Example #1
//Interrogator Number 1
//UF4 By Default, {4,5, 11, 16, 20, 21}
:RGS:SCE:INTERROGATOR:1:UF UF4
//ON By Default
:RGS:SCE:INTERROGATOR:1:ENABLE ON
//0 By Default, [0, Scenario Time]
:RGS:SCE:INTERROGATOR:1:BEGIN 0
//Scenario Time By Default, [0, Scenario Time], stop >= start
:RGS:SCE:INTERROGATOR:1:END 200
//0 By Default,
:RGS:SCE:INTERROGATOR:1:NINTERVALS 2
//0 By Default, [Interrogator Start, Interrogator Stop]
:RGS:SCE:INTERROGATOR:1:INTERVAL:1:BEGIN 0
//Interrogator Stop Time, [Interrogator Start, Interrogator Stop], stop >= start
:RGS:SCE:INTERROGATOR:1:INTERVAL:1:END 30
//ON By Default
:RGS:SCE:INTERROGATOR:1:INTERVAL:1:ENABLE ON
//20000000 By Default, hexadecimal digits, exclude P/AP
:RGS:SCE:INTERROGATOR:1:INTERVAL:1:MESSAGE 20000000
```

:RGS:SCE:INTERROGATOR:1:INTERVAL:2:BEGIN 30; :INTERVAL:2:END 200; :INTERVAL:2:ENABLE OFF; :INTERVAL:2:MESSAGE 21091001

**ATCRBS Pulse Information Definition Example #1**

:RGS:SCE:PULSE:ATCRBS:CH:1:PF1:DWIDTH 0

:RGS:SCE:PULSE:ATCRBS:CH:1:PF1:DPOS 0

:RGS:SCE:PULSE:ATCRBS:CH:1:PF1:DAMP 0

:RGS:SCE:PULSE:ATCRBS:CH:1:PF1:ENABLE ON

:RGS:SCE:PULSE:ATCRBS:CH:1:PC1:DWIDTH 0;:DPOS 0;:DAMP 0;:ENABLE ON

:RGS:SCE:PULSE:ATCRBS:CH:1:PA1:DWIDTH 0;:DPOS 0;:DAMP 0;:ENABLE ON

:RGS:SCE:PULSE:ATCRBS:CH:1:PC2:DWIDTH 0;:DPOS 0;:DAMP 0;:ENABLE ON

:RGS:SCE:PULSE:ATCRBS:CH:1:PA2:DWIDTH 0;:DPOS 0;:DAMP 0;:ENABLE ON

:RGS:SCE:PULSE:ATCRBS:CH:1:PC4:DWIDTH 0;:DPOS 0;:DAMP 0;:ENABLE ON

:RGS:SCE:PULSE:ATCRBS:CH:1:PA4:DWIDTH 0;:DPOS 0;:DAMP 0;:ENABLE ON

:RGS:SCE:PULSE:ATCRBS:CH:1:PB1:DWIDTH 0;:DPOS 0;:DAMP 0;:ENABLE ON

:RGS:SCE:PULSE:ATCRBS:CH:1:PD1:DWIDTH 0;:DPOS 0;:DAMP 0;:ENABLE ON

:RGS:SCE:PULSE:ATCRBS:CH:1:PB2:DWIDTH 0;:DPOS 0;:DAMP 0;:ENABLE ON

:RGS:SCE:PULSE:ATCRBS:CH:1:PD2:DWIDTH 0;:DPOS 0;:DAMP 0;:ENABLE ON

:RGS:SCE:PULSE:ATCRBS:CH:1:PB4:DWIDTH 0;:DPOS 0;:DAMP 0;:ENABLE ON

:RGS:SCE:PULSE:ATCRBS:CH:1:PD4:DWIDTH 0;:DPOS 0;:DAMP 0;:ENABLE ON

:RGS:SCE:PULSE:ATCRBS:CH:1:PF2:DWIDTH 0;:DPOS 0;:DAMP 0;:ENABLE ON

:RGS:SCE:PULSE:ATCRBS:CH:1:PF2:DWIDTH 0;:DPOS 0;:DAMP 0;:ENABLE ON

**Mode S Preamble Pulse Definition Example #1**

:RGS:SCE:PULSE:MODES:CH:1:P1:DWIDTH 0

:RGS:SCE:PULSE:MODES:CH:1:P1:DPOS 0

:RGS:SCE:PULSE:MODES:CH:1:P1:DAMP 0

:RGS:SCE:PULSE:MODES:CH:1:P1:ENABLE ON

:RGS:SCE:PULSE:MODES:CH:1:P2:DWIDTH 0;:DPOS 0;:DAMP 0;:ENABLE ON

:RGS:SCE:PULSE:MODES:CH:2:P1:DWIDTH 0;:DPOS 0;:DAMP 0;:ENABLE ON

:RGS:SCE:PULSE:MODES:CH:3:P1:DWIDTH 0;:DPOS 0;:DAMP 0;:ENABLE ON

Video Data Block Definition Example #1

//TCAS By Default.  Valid only TCAS and ATCRBS

:RGS:SCE:VDB:1:MODE TCAS

//ON By Default

:RGS:SCE:VDB:1:ENABLE ON

//0 By Default, [0, Scenario Time]

:RGS:SCE:VDB:1:BEGIN 0

//Scenario Time By Default, [0, Scenario Time], stop >= start

:RGS:SCE:VDB:1:END 3000

:RGS:SCE:VDB:1:MSADDR 1

:RGS:SCE:VDB:1:RPLYCH 1

:RGS:SCE:VDB:1:ALTITUDE 12000

:RGS:SCE:VDB:1:BEARING 135

```
:RGS:SCE:VDB:1:RANGE 5
//ALTITUDE By Default, No valid for ATCRBS & TIS-B
:RGS:SCE:VDB:1:RPLYANT BOTTOM
:RGS:SCE:VDB:1:RPLYPWR -20
//Binary By Default, No valid for ATCRBS (ignored)
:RGS:SCE:VDB:1:AMODE BINARY
:RGS:SCE:VDB:1:VELOCITY 150
:RGS:SCE:VDB:1:VERTICAL 0
:RGS:SCE:VDB:1:TRACK 0
:RGS:SCE:VDB:1:DATA 007FE001FF
:RGS:SCE:VDB:1:AMPLITUDE 008403105000000000000000000000
```

**Video Data Block Definition Example #2**

```
:RGS:SCE:VDB:2:MODE ATCRBS
:RGS:SCE:VDB:2:ENABLE ON
:RGS:SCE:VDB:2:BEGIN 0
:RGS:SCE:VDB:2:END 3000
//ALTITUDE & FORWARD By Default
:RGS:SCE:VDB:2:WS:1:RPLYANT BOTTOM;:RPLYQUAD FORWARD
:RGS:SCE:VDB:2:RPLYCH 1
:RGS:SCE:VDB:2:ALTITUDE 12000
:RGS:SCE:VDB:2:BEARING 135
:RGS:SCE:VDB:2:RANGE 5
:RGS:SCE:VDB:2:RPLYPWR -20
:RGS:SCE:VDB:2:VELOCITY 150
:RGS:SCE:VDB:2:VERTICAL 0
:RGS:SCE:VDB:2:TRACK 0
:RGS:SCE:VDB:2:DATA FFFFE003FFE
:RGS:SCE:VDB:2:AMPLITUDE 000000000000000000000
```

### 5.13.2 DO-260 TEST SINGLE ADS-B EXAMPLE

#### 5.13.2.1 The following example creates a normal test for a single ADS-B.

```
//BEGIN TEST
//RESET DO260 TEST
:RGS:DO260:RESET
//TEST DEFINITION
//TIMING DEFINTION
:RGS:DO260:TIMING:TRIGGER:SOURCE GENA
//0-DELAY+ 1-DELAY- 2-RANDOM
:RGS:DO260:TIMING:TRIGGER:MODE 0
:RGS:DO260:TIMING:PERIOD 10
```

```
//0-UNLIMITED
:RGS:DO260:TIMING:TRANSMISSIONS 0
//SPECIAL TYPE DEFINITION
:RGS:DO260:TYPE:NORMAL:GENS:GENA:POWER -20
:RGS:DO260:TYPE:NORMAL:GENS:GENA:PHASE 0
:RGS:DO260:TYPE:NORMAL:GENS:GENA:PATH TOP
//:RGS:DO260:TYPE:NORMAL:GENS:GENA:DELAY 0 //Not Available for Gen A.  Business Rule's

:RGS:DO260:TYPE:NORMAL:GENS:GENA:SIGNAL ON
:RGS:DO260:TYPE:NORMAL:GENS:GENA:MODES:DATA 8800000148000000000000000001
:RGS:DO260:TYPE:NORMAL:GENS:GENA:MODES:RANDOM OFF
//BEGIN DO260 TEST
:RGS:DO260:START
//END OF TEST.
```

### 5.13.2.2 DO-260 Test Dual ADS-B

The following example creates a test of type normal for a dual ADS-B.

```
//BEGIN TEST
//RESET DO260 TEST
:RGS:DO260:RESET
//TEST DEFINITION
//TIMING DEFINTION
:RGS:DO260:TIMING:TRIGGER:SOURCE GENA
//0-DELAY+ 1-DELAY- 2-RANDOM
:RGS:DO260:TIMING:TRIGGER:MODE 0
:RGS:DO260:TIMING:PERIOD 10
//0-UNLIMITED
:RGS:DO260:TIMING:TRANSMISSIONS 0
//SPECIAL TYPE DEFINITION
:RGS:DO260:TYPE:NORMAL:GENS:GENA:POWER -20
:RGS:DO260:TYPE:NORMAL:GENS:GENA:PHASE 0
:RGS:DO260:TYPE:NORMAL:GENS:GENA:PATH TOP
//:RGS:DO260:TYPE:NORMAL:GENS:GENA:DELAY 0 //Not Available for Gen A.  Business Rule's

:RGS:DO260:TYPE:NORMAL:GENS:GENA:SIGNAL ON
:RGS:DO260:TYPE:NORMAL:GENS:GENA:MODES:DATA 8800000148000000000000000001
:RGS:DO260:TYPE:NORMAL:GENS:GENA:MODES:RANDOM OFF
:RGS:DO260:TYPE:NORMAL:GENS:GENB:POWER -30
:RGS:DO260:TYPE:NORMAL:GENS:GENB:PHASE 0
:RGS:DO260:TYPE:NORMAL:GENS:GENB:PATH TOP
:RGS:DO260:TYPE:NORMAL:GENS:GENB:DELAY 0
:RGS:DO260:TYPE:NORMAL:GENS:GENB:SIGNAL ON
:RGS:DO260:TYPE:NORMAL:GENS:GENB:MODES:DATA 8800000148000000000000000001
:RGS:DO260:TYPE:NORMAL:GENS:GENB:MODES:RANDOM OFF
//BEGIN DO260 TEST
:RGS:DO260:START
//END OF TEST.
```

### 5.13.2.3 DO-260 Special Test Overlapping Pulse

The following example creates a special test for overlapping pulse.

```
//BEGIN TEST
//RESET DO260 TEST
:RGS:DO260:RESET
//TEST DEFINITION
//TIMING DEFINTION
:RGS:DO260:TIMING:TRIGGER:SOURCE GENA
//0-DELAY+ 1-DELAY- 2-RANDOM
:RGS:DO260:TIMING:TRIGGER:MODE 0
:RGS:DO260:TIMING:PERIOD 10
//0-UNLIMITED
:RGS:DO260:TIMING:TRANSMISSIONS 0
//SPECIAL TYPE DEFINITION
:RGS:DO260:TYPE:OVERLAPPINGPULSE:PULSE:WIDTH 4500
:RGS:DO260:TYPE:OVERLAP:PULSE:DELAY 0
:RGS:DO260:TYPE:OVERLAP:GENS:GENA:POWER -20
:RGS:DO260:TYPE:OVERLAP:GENS:GENA:PHASE 0
:RGS:DO260:TYPE:OVERLAP:GENS:GENA:PATH TOP
//:RGS:DO260:TYPE:OVERLAP:GENS:GENA:DELAY 0 //Not Available for Gen A.  Business Rule's

//:RGS:DO260:TYPE:OVERLAP:GENS:GENA:SIGNAL ON //Not Available for Special Test.  Business
Rule's
:RGS:DO260:TYPE:OVERLAP:GENS:GENA:MODES:DATA 8800000148000000000000000001
//:RGS:DO260:TYPE:OVERLAP:GENS:GENA:MODES:RANDOM OFF //Not Available for Special test.
Business Rule's
:RGS:DO260:TYPE:OVERLAPPINGPULSE:GENS:GENc:POWER -20
:RGS:DO260:TYPE:OVERLAP:GENS:GENc:PHASE 0
:RGS:DO260:TYPE:OVERLAPPINGPULSE:GENS:GENc:PATH TOP
:RGS:DO260:TYPE:OVERLAP:GENS:GENc:DELAY 0
//:RGS:DO260:TYPE:OVERLAPPINGPULSE:GENS:GENc:SIGNAL ON //Not Available for Special test.
Business Rule's
//BEGIN DO260 TEST
:RGS:DO260:START
//END OF TEST.
```

### 5.13.2.4 DO-260 Special Test Bit Failures

The following example creates a special test for an ADS-B Bad Chips DF17 Energy in chips 33 through 39.

```
//BEGIN TEST
//RESET DO260 TEST
:RGS:DO260:RESET
//TEST DEFINITION
//TIMING DEFINTION
:RGS:DO260:TIMING:TRIGGER:SOURCE GENA
//0-DELAY+ 1-DELAY- 2-RANDOM
:RGS:DO260:TIMING:TRIGGER:MODE 0
:RGS:DO260:TIMING:PERIOD 10
//0-UNLIMITED
:RGS:DO260:TIMING:TRANSMISSIONS 0
//SPECIAL TYPE DEFINITION
:RGS:DO260:TYPE:BITFAILURES:CHIPS:FIRST 33
:RGS:DO260:TYPE:BITF:CHIPS:LAST 39
:RGS:DO260:TYPE:BITF:GENS:GENA:POWER -20
:RGS:DO260:TYPE:BITF:GENS:GENA:PHASE 0
:RGS:DO260:TYPE:BITF:GENS:GENA:PATH TOP
//:RGS:DO260:TYPE:BITF:GENS:GENA:DELAY 0 //Not Available for Gen A.  Business Rule's
//:RGS:DO260:TYPE:BITF:GENS:GENA:SIGNAL ON //Not Available for Special test.  Business Rule's

:RGS:DO260:TYPE:BITF:GENS:GENA:MODES:DATA 8800000148000000000000000001
//:RGS:DO260:TYPE:BITF:GENS:GENA:MODES:RANDOM OFF //Not Available for Special test.  Business
Rule's
:RGS:DO260:TYPE:BITF:GENS:GENC:POWER -20
:RGS:DO260:TYPE:BITF:GENS:GENC:PHASE 0
:RGS:DO260:TYPE:BITF:GENS:GENC:PATH TOP
:RGS:DO260:TYPE:BITF:GENS:GENC:DELAY 0
//:RGS:DO260:TYPE:BITF:GENS:GENC:SIGNAL ON //Not Available for Special test.  Business Rule's

//BEGIN DO260 TEST
:RGS:DO260:START
//END OF TEST.
```

### 5.13.2.5 DO-260 Special Test Altered Preamble

The following example creates a special test for an ADS-B altered preamble.

```
//BEGIN TEST
//RESET DO260 TEST
:RGS:DO260:RESET
//TEST DEFINITION
//TIMING DEFINTION
:RGS:DO260:TIMING:TRIGGER:SOURCE GENA
//0-DELAY+ 1-DELAY- 2-RANDOM
:RGS:DO260:TIMING:TRIGGER:MODE 0
:RGS:DO260:TIMING:PERIOD 10
//0-UNLIMITED
:RGS:DO260:TIMING:TRANSMISSIONS 0
//SPECIAL TYPE DEFINITION
:RGS:DO260:TYPE:ALTEREDPREAMBLE:PULSE:P1:WIDTH 500
:RGS:DO260:TYPE:ALT:PULSE:P1:POSITION 0
:RGS:DO260:TYPE:ALTEREDPREAMBLE:PULSE:P1:REFERENCE GENA
:RGS:DO260:TYPE:ALT:PULSE:P1:ENABLE ON
:RGS:DO260:TYPE:ALT:PULSE:P2:WIDTH 500
:RGS:DO260:TYPE:ALT:PULSE:P2:POSITION 1000
:RGS:DO260:TYPE:ALT:PULSE:P2:REFERENCE GENA
:RGS:DO260:TYPE:ALT:PULSE:P2:ENABLE ON
:RGS:DO260:TYPE:ALT:PULSE:P3:WIDTH 500
:RGS:DO260:TYPE:ALT:PULSE:P3:POSITION 3500
:RGS:DO260:TYPE:ALT:PULSE:P3:REFERENCE GENA
:RGS:DO260:TYPE:ALT:PULSE:P3:ENABLE ON
:RGS:DO260:TYPE:ALT:PULSE:P4:WIDTH 500
:RGS:DO260:TYPE:ALT:PULSE:P4:POSITION 4500
:RGS:DO260:TYPE:ALT:PULSE:P4:REFERENCE GENA
:RGS:DO260:TYPE:ALT:PULSE:P4:ENABLE ON
:RGS:DO260:TYPE:ALTEREDPREAMBLE:GENS:GENA:POWER -20
:RGS:DO260:TYPE:ALT:GENS:GENA:PHASE 0
:RGS:DO260:TYPE:ALT:GENS:GENA:PATH TOP
//:RGS:DO260:TYPE:ALT:GENS:GENA:DELAY 0 //Not Available for Gen A.  Business Rule's
//:RGS:DO260:TYPE:ALT:GENS:GENA:SIGNAL ON //Not Available for Special Test.  Business Rule's

:RGS:DO260:TYPE:ALT:GENS:GENA:MODES:DATA 8800000148000000000000000001
//:RGS:DO260:TYPE:ALT:GENS:GENA:MODES:RANDOM OFF //Not Available for Special test.  Business
Rule's
:RGS:DO260:TYPE:ALT:GENS:GENC:POWER -20
:RGS:DO260:TYPE:ALT:GENS:GENC:PHASE 0
```

```
:RGS:DO260:TYPE:ALT:GENS:GENC:PATH TOP
:RGS:DO260:TYPE:ALT:GENS:GENC:DELAY 0
//:RGS:DO260:TYPE:ALT:GENS:GENC:SIGNAL ON //Not Available for Special Test.  Business Rule's

//BEGIN DO260 TEST
:RGS:DO260:START
//END OF TEST.
```

### 5.13.2.6 Block Transmission

The following example creates a block transmission.

```
//BEGIN TEST
//RESET BLOCK TRANSMISSION TEST
:RGS:TXBLOCK:RESET
//BLOCK DEFINITION
// BLOCK TRANSMISSION PERIOD IN MS
:RGS:TXBLOCK:PERIOD 100
//TRANSMISSION MODE CONTINUOUS OR INTERRUPT
:RGS:TXBLOCK:MODE CONTINUOUS
//TOTAL NUMBER OF BLOCKS TRANSMISSION
:RGS:TXBLOCK:TRANS 5
//DATA MESSAGE
:RGS:TXBLOCK:1:MESS 00000000000001
//TYPE OF THE MESSAGE
:RGS:TXBLOCK:1:TYPE 3
//THE STARTING TRANSMISSION TIME (in µs) WITHIN THE BLOCK OF THE MESSAGE
:RGS:TXBLOCK:1:TIME 0
//THE POWER LEVEL OF THE MESSAGE
:RGS:TXBLOCK:1:POWER -70
//THE PHASE OF THE MESSAGE
:RGS:TXBLOCK:1:PHASE 0
:RGS:TXBLOCK:2:MESS 8D333333000000000000000000000;:TYPE 3;:TIME 125;:POWER -70;:PHASE 0
//BEGIN BLOCK TRANSMISSION
:RGS:TXBLOCK:START // The system returns a ACK.
//END OF TEST.
```

### 5.13.3 UAT SCEN1ARIO DEFINITION EXAMPLE

The following example creates a scenario test with two statics intruders and two dynamic intruders by the channels UAT RX1 and UAT RX2. This capability requires Unit specific UAT hardware.

```
//Begin Scenario Test
//Receiving Station Definition Example
:RGS:SCE:TYPE UAT  // sets the Unit to interpret the scenario commands as UAT mode
:RGS:OWN:LAT 25.91338
:RGS:OWN:LONG -80.3330058
:RGS:OWN:HEAD 0
:RGS:OWN:ALT 12000
:RGS:OWN:MSADDR 4

//Scenario Definition Example
:RGS:SCE:RESET
:RGS:SCE:TIME 3000
:RGS:SCE:STATIC:QUANTITY 2,2
:RGS:SCE:DYNAMIC:QUANTITY 2,2
:RGS :SCE :UTCGPS OFF
:RGS :SCE :CAPTURE ON
:RGS :RCV :MASK F00

:RGS:SCE:CHANNEL  UATRX1
:RGS:SCE:STATIC:1:PLCODE 0           //payload type code 0..13.  0 by default.
:RGS:SCE:STATIC:1:ADDRQ 0            //Address qualifier 0..7
:RGS:SCE:STATIC:1:AVSIZE 0           //A/V Size 0..15
:RGS:SCE:STATIC:1:AGSTATE 0          //AG State 0..3
:RGS:SCE:STATIC:1:ALTTYPE 0          //Altitude Type 0..1
:RGS:SCE:STATIC:1:UAT:GPSLAT 0       //lateral axis GPS antenna offset 0..7.  0 by default.  0 - No Data.
:RGS:SCE:STATIC:1:UAT:GPSLONG 0      //longitudinal axis GPS antenna offset 0..31.  0 by default .  0 - No
                                     data
:RGS:SCE:STATIC:1:MSO 752            //MSO 752..3951
:RGS:SCE:STATIC:1:NIC 0              //NIC  0..15
:RGS:SCE:STATIC:1:OFFSET 0           //offset or delay 0..65500
:RGS:SCE:STATIC:1:OFFMANUAL OFF      //enables or disables the manual override of the offset
:RGS:SCE:STATIC:1:TAH 0              //track and heading type 0..3.  0 - No Data
:RGS:SCE:STATIC:1:VVSOURCE 0         //VV Source 0..1.  0 - From Geo 1 - From Baro
:RGS:SCE:STATIC:1:UPLINK 0           //uplink feedback encoding 0..7
:RGS:SCE:STATIC:1:UTC ON             //enables or disables the UTC coupled condition
:RGS:SCE:STATIC:1:UAT:GPSAXIS 0      //GPS antenna axis of the ADS-B message
:RGS:SCE:STATIC:1: ALTITUDE 12002;:BEARING 45;:RANGE 5

:RGS:SCE:STATIC:2:PLCODE 1           //payload type code 0..13
```

```
:RGS:SCE:STATIC:2:ADDRQ 1              //Address qualifier 0..7
:RGS:SCE:STATIC:2:AVSIZE 1             //A/V Size 0..15
:RGS:SCE:STATIC:2:AGSTATE 1            //AG State 0..3
:RGS:SCE:STATIC:2:ALTTYPE 1            //Altitude Type 0..1
:RGS:SCE:STATIC:2:UAT:GPSLAT 1         //lateral axis GPS antenna offset 0..7.  0 by default.  0 - No Data.
:RGS:SCE:STATIC:2:UAT:GPSLONG 1        //longitudinal axis GPS antenna offset 0..31.  0 by default .  0 - No
                                       data
:RGS:SCE:STATIC:2:MSO 754              //MSO 752..3951
:RGS:SCE:STATIC:2:NIC 1                //NIC  0..15
:RGS:SCE:STATIC:2:OFFSET 0             //offset or delay 0..65500
:RGS:SCE:STATIC:2:OFFMANUAL OFF  //enables or disables the manual override of the offset
:RGS:SCE:STATIC:2:TAH 1                //track and heading type 0..3.  0 - No Data
:RGS:SCE:STATIC:2:VVSOURCE 1           //VV Source 0..1.  0 - From Geo 1 - From Baro
:RGS:SCE:STATIC:2:UPLINK 1             //uplink feedback encoding 0..7
:RGS:SCE:STATIC:1:UTC ON               //enables or disables the UTC coupled condition
:RGS:SCE:STATIC:2:PLMS FFFF            //mode status payload message element.  Apply only for payload
                                       type 1 and 3.
24 hexadecimal.  pad on the right with zeros.
:RGS:SCE:STATIC:2:PLASV FFFF        //the auxiliary state vector payload message element .  Apply only for
                                       payload type 1,2,5 and 6.  10 hexadecimal.  pad on the right with
                                       zeros.
:RGS:SCE:DYNAMIC:1:UAT:NADSB 5
:RGS:SCE:DYNAMIC:1:UAT:ADSB:1:PLCODE 1
:RGS:SCE:DYNAMIC:1: UAT:ADSB:1:PLMS AAAAAAAAAAAAAAAAAA
:RGS:SCE:DYNAMIC:1: UAT:ADSB:1:PLASV CCCCCCC
:RGS:SCE:DYNAMIC:1: UAT:ADSB:2:PLCODE 2
:RGS:SCE:DYNAMIC:1: UAT:ADSB:2:PLASV BBBBBBB
:RGS:SCE:DYNAMIC:1: UAT:ADSB:3:PLCODE 3
:RGS:SCE:DYNAMIC:1: UAT:ADSB:3:PLTS EEEEEEE
:RGS:SCE:DYNAMIC:1: UAT:ADSB:4:PLCODE 6
:RGS:SCE:DYNAMIC:1: UAT:ADSB:4:PLTS FFFFF
:RGS:SCE:DYNAMIC:1: UAT:ADSB:4:PLASV DDDDDDDDD
:RGS:SCE:DYNAMIC:1: UAT:ADSB:1:NINTERVALS 10
:RGS:SCE:DYNAMIC:1: UAT:ADSB:1:INTERVAL:1:ENABLE off
:RGS:SCE:DYNAMIC:1: UAT:ADSB:1:INTERVAL:10:BEGIN 100
:RGS:SCE:DYNAMIC:1: UAT:ADSB:1:INTERVAL:10:END 150
:RGS:SCE:DYNAMIC:1: UAT:ADSB:1:INTERVAL:10:PWR -32
:RGS:SCE:DYNAMIC:1: UAT:ADSB:2:NINTERVALS 8
:RGS:SCE:DYNAMIC:1: UAT:ADSB:2:INTERVAL:11:ENABLE off
:RGS:SCE:DYNAMIC:1:UAT:ADSB:3:INTERVAL:5:ENABLE off
:RGS:SCE:DYNAMIC:1:UAT:ADSB:3:INTERVAL:5:PWR -55

:RGS :SCE :CHANNEL  UATRX2
```

```
:RGS:SCE:STATIC:1:PLCODE 3
:RGS:SCE:STATIC:1:ADDRQ 0
:RGS:SCE:STATIC:1:AVSIZE 0
:RGS:SCE:STATIC:1:AGSTATE 0
:RGS:SCE:STATIC:1:ALTTYPE 0
:RGS:SCE:STATIC:1:UAT:GPSLAT 0
:RGS:SCE:STATIC:1:UAT:GPSLONG 0
:RGS:SCE:STATIC:1:MSO 752
:RGS:SCE:STATIC:1:NIC 0
:RGS:SCE:STATIC:1:OFFSET 0
:RGS:SCE:STATIC:1:OFFMANUAL OFF
:RGS:SCE:STATIC:1:TAH 0
:RGS:SCE:STATIC:1:VVSOURCE 0
:RGS:SCE:STATIC:1:UPLINK 0
:RGS:SCE:STATIC:1:UTC ON
:RGS:SCE:STATIC:1:PLMS FFFF
:RGS:SCE:STATIC:1:PLTS FFFF

:RGS:SCE:STATIC:2:PLCODE 13 //Ground Uplink
:RGS:SCE:STATIC:2:UTC on
:RGS:SCE:STATIC:2:UAT:GUS:POSVALID on
:RGS:SCE:STATIC:2:UAT:GUS:ADVALID on
:RGS:SCE:STATIC:2:UAT:GUS:LAT 5
:RGS:SCE:STATIC:2:UAT:GUS:LONG 6
:RGS:SCE:STATIC:2:UAT:GUS:SLOTID 7
:RGS:SCE:STATIC:2:UAT:GUS:TISBID 8
:RGS:SCE:STATIC:2:SQPWR -30
:RGS:SCE:STATIC:2:UAT:GUS:IFRAME:NIFRAMES 20
:RGS:SCE:STATIC:2:UAT:GUS:IFRAME:2:IFDATA FILE,C..\ATG\test_1.txt
:RGS:SCE:STATIC:2:UAT:GUS:IFRAME:20:IFDATA HEX,4441544153414d504c45
```

## 5.14 EXAMPLE PROGRAM

This example program is provided to allow you to quickly get started communicating with the unit. It requires National Instruments LabWindows/CVI. Version 2010 or above is recommended. This program shows how to communicate using GPIB, and Ethernet. The following text can be copied and pasted into 4 files and compiled.

**Example Program**

```
//==============================================================================
// Title:       Main.h
// Purpose:     Main header file.
//
// Created on:  4/10/2017 at 10:12:29 AM by VIAVI Test Solutions.
// Copyright:   VIAVI AvComm. All Rights Reserved.
//==============================================================================

#ifndef __Main_H__
#define __Main_H__

#ifdef __cplusplus
    extern "C" {
#endif

//==============================================================================
// Include files

#include "cvidef.h"


#ifdef __cplusplus
    }
#endif


#endif  // ndef __Main_H__
//=============================================================================
//=== END MAIN HEADER FILE ===================================================
//=============================================================================



//=============================================================================
// Title:       Main.c
// Purpose:     Main function to show how to communicate with the unit using
//              GPIB, Ethernet and Serial.
//              This example program was compiled and tested using
//              National Instruments LabWindows/CVI Ver 2010.
//
// Created on:  4/10/2017 at 10:12:29 AM by VIAVI Test Solutions.
```

| Example Program |
|---|
| // Copyright: VIAVI AvComm. All Rights Reserved. |

| Example Program (cont) |
|---|

```
//==========================================================================

//==========================================================================
// Include files
#include <userint.h>
#include <utility.h>
#include <formatio.h>
#include "RGS_Driver.h"
//==========================================================================
void main(void)
{
   ViStatus status = 0;
   int bytes = 0;
   ViChar readBuff[512] = {0};
   ViChar Message[512] = {0};
   ViReal64 cmdWait = 0.030;

// Initialize communication using GPIB, Ethernet or Serial (USB Port on front),
// Uncomment the line for the method you desire and set the address.

 status = RGS_init (RGSGen1,"RGS-2000NG", "113956", "ETHERNET",
                                              "10.170.170.52", "");
// status = RGS_init (RGSGen1,"RGS-2000NG", "113956", "GPIB", "8", "");

   if(status < 0)        // failed to initialize
   {
      // Display error message
      Fmt(Message,"%s<The RGS-2000NG failed to initialize. \n   Terminating program.");
      status = MessagePopup ("Error", Message);
      exit(0);
   }

   // The carrage return is appended by the RGS_writeInstrData function.

   // Get Unit Name
   status = RGS_writeInstrData (RGSGen1, ":RGS:NAME?", cmdWait);
   status = RGS_readInstrData (RGSGen1, 250, readBuff, &bytes);
   // readBuffer = RGSSN1000000003

   // Get Unit Serial Number
   status = RGS_writeInstrData (RGSGen1, ":RGS:SN?", cmdWait);
   status = RGS_readInstrData (RGSGen1, 250, readBuff, &bytes);
   // readBuffer = 1000000003

   // Get Unit Last Calibration Date
```

**Example Program (cont)**

```
status = RGS_writeInstrData (RGSGen1, ":RGS:LASTCAL?", cmdWait);
status = RGS_readInstrData (RGSGen1, 250, readBuff, &bytes);
// readBuffer = 2/20/2017 3:25:43 PM - Pass

// Note the *IDN? is valid on all interfaces after version 17.03.3101
// before this version it is only valid on GPIB.
status = RGS_writeInstrData (RGSGen1, "*IDN?", cmdWait);
status = RGS_readInstrData (RGSGen1, 250, readBuff, &bytes);
// readBuffer = VIAVI;RGS-2000NG TCAS Test Set;113956

// Get Unit Version Information
status = RGS_writeInstrData (RGSGen1, ":RGS:VERSIONS?", cmdWait);
status = RGS_readInstrData (RGSGen1, 250, readBuff, &bytes);
// readBuffer = 17.03.2205,17.03.2205,A.P,A.L,A.N,A.M,A.0,A.0,3.E,3.E,3.E,A.0

// Block transmission example
status = RGS_writeInstrData (RGSGen1, ":RGS:TXBLOCK:RESET", cmdWait);
// Delay three seconds to allow unit to switch to proper
// instrument and clear the transmission block.
Delay(3);
status = RGS_writeInstrData (RGSGen1, ":RGS:TXBLOCK:PERIOD 100", cmdWait);
status = RGS_writeInstrData (RGSGen1, ":RGS:TXBLOCK:MODE CONTINUOUS", cmdWait);
status = RGS_writeInstrData (RGSGen1, ":RGS:TXBLOCK:TRANS 5 ", cmdWait);
status = RGS_writeInstrData (RGSGen1, ":RGS:TXBLOCK:1:TYPE 3", cmdWait);
status = RGS_writeInstrData (RGSGen1, ":RGS:TXBLOCK:1:TIME 0", cmdWait);
status = RGS_writeInstrData (RGSGen1, ":RGS:TXBLOCK:1:POWER -70", cmdWait);
status = RGS_writeInstrData (RGSGen1, ":RGS:TXBLOCK:1:PHASE 0", cmdWait);
// Command Concatonation example
status = RGS_writeInstrData (RGSGen1,
  ":RGS:TXBLOCK:2:MESS 8D33333300000000000000000000;:TYPE 3;:TIME 125;:POWER
-70;:PHASE 0", cmdWait);

//This command retruns an "*" or "?"
status = RGS_writeInstrData (RGSGen1, ":RGS:TXBLOCK:START", cmdWait);
Delay(1);
status = RGS_readInstrData (RGSGen1, 250, readBuff, &bytes);
if (FindPattern (readBuff, 0, -1, "?", 0, 0) >= 0)
{
  // Display error message
  Fmt(Message,"%s<:RGS:TXBLOCK:START reported an error.");
  status = MessagePopup ("Error", Message);
}

// Unit Reset
// RGS_reset has a 10 second delay to allow the unit to complete the reset.
status = RGS_reset (RGSGen1);
```

**Example Program (cont)**

```
   status = RGS_close (RGSGen1);
}

//=============================================================================
//=== END MAIN FILE ==========================================================
//=============================================================================

//=============================================================================
// Title:       RGS_Driver.h
// Purpose:     Driver header file.
//
// Created on:  4/10/2017 at 10:12:29 AM by VIAVI Test Solutions.
// Copyright:   VIAVI AvComm. All Rights Reserved.
//=============================================================================
#include <cvidef.h>


#ifndef __RGS_HEADER
#define __RGS_HEADER

#define __RGS_GLOBALS
#include <vpptype.h>

#if defined(__cplusplus) || defined(__cplusplus__)
extern "C" {
#endif

#ifdef __RGS_GLOBALS
   #define RGS_EXT
#else // __RGS_GLOBALS is not defined
   #define RGS_EXT extern
#endif // __RGS_GLOBALS

//=============================================================================
//= Define Instrument Specific Error/Warning Codes Here ======================
//=============================================================================
#define VI_ERROR_PARAMETER9                (_VI_ERROR+0x3FFC0009L)//0xBFFC0009
#define VI_ERROR_PARAMETER10               (_VI_ERROR+0x3FFC000AL)
#define VI_ERROR_PARAMETER11               (_VI_ERROR+0x3FFC000BL)
#define VI_ERROR_INSTR_FILE_OPEN           (_VI_ERROR+0x3FFC0800L)//0xBFFC0800
#define VI_ERROR_INSTR_FILE_WRITE          (_VI_ERROR+0x3FFC0801L)//0xBFFC0801
#define VI_ERROR_INSTR_INTERPRETING_RESPONSE (_VI_ERROR+0x3FFC0803L)//0xBFFC0803

#define VI_INSTR_WARNING_OFFSET                     (0x3FFC0900L)
#define VI_INSTR_ERROR_OFFSET              (_VI_ERROR+0x3FFC0900L)//0xBFFC0900
```

**Example Program (cont)**

```
#define RGS_ERROR_INVALID_CONFIGURATION (VI_INSTR_ERROR_OFFSET +
0xF0L)//0xBFFC09F0
#define RGS_ERROR_INVALID_COMMAND       (VI_INSTR_ERROR_OFFSET + 0xF1L)//0xBFFC09F1
#define RGS_ERROR_NAC                   (VI_INSTR_ERROR_OFFSET + 0xF2L)//0xBFFC09F2
#define RGS_ERROR_COMMAND_ERROR         (VI_INSTR_ERROR_OFFSET + 0xF3L)//0xBFFC09F3
#define RGS_ERROR_NO_DATA               (VI_INSTR_ERROR_OFFSET + 0xF4L)//0xBFFC09F4
#define RGS_ERROR_CMD_WAIT              (VI_INSTR_ERROR_OFFSET + 0xF5L)//0xBFFC09F5
#define RGS_ERROR_SESSION_ALREADY_EXITS (VI_INSTR_ERROR_OFFSET +
0xF6L)//0xBFFC09F6
#define RGS_ERROR_TOO_MANY_SESSIONS     (VI_INSTR_ERROR_OFFSET +
0xF7L)//0xBFFC09F7

#define DEFAULT_BAUD   115200         // Default baud rate
#define DEFAULT_DBITS  8              // Default data bits
#define DEFAULT_SBIT   1              // Default stop bit
#define DEFAULT_PARITY 0              // Default parity

#define OFF      0
#define ON       1

#define RGSGen1    1
#define RGSGen2    2

typedef struct {
  ViInt32     baudrate;
  ViInt32     databits;
  ViInt32     parity;
  ViInt32     stopbits;
  ViInt16     connect;        // ON or OFF
  ViInt32     resourcename;     // 0-device name; 1-lan IP address
} typRGSGenConfigs;


#ifdef __RGS_GLOBALS
  static typRGSGenConfigs RGSGenConfig;   // config parameters
#else // __RGSGEN_GLOBALS is not defined
  extern typRGSGenConfigs RGSGenConfig;   // config parameters
#endif // __RGSGEN_GLOBALS

//==============================================================================
//= GLOBAL USER-CALLABLE FUNCTION DECLARATIONS (Exportable Functions) =========
//==============================================================================
RGS_EXT ViStatus _VI_FUNC RGS_init (ViInt16 RGSGen, ViChar RGSGenType[],
                     ViChar RGSGenPartNumber[], ViChar RGSGenBus[],
                     ViChar primaryAddr[],ViChar secondaryAddr[]);

RGS_EXT ViStatus _VI_FUNC RGS_close (ViInt16 RGSGen);
```

**Example Program (cont)**

```
RGS_EXT ViStatus _VI_FUNC RGS_reset (ViInt16 RGSGen);

RGS_EXT ViStatus _VI_FUNC RGS_writeInstrData (ViInt16 RGSGen,
                                              ViString writeBuffer,
                                              ViReal64 waitToNxtCmd);

RGS_EXT ViStatus _VI_FUNC RGS_readInstrData (ViInt16 RGSGen,
                                             ViInt32 numberBytesToRead,
                                             ViChar _VI_FAR readBuffer[],
                                             ViPInt32 numBytesRead);

RGS_EXT ViStatus _VI_FUNC RGS_errorQuery (ViInt16 RGSGen,
                                          ViInt32 *errorCode,
                                          ViChar _VI_FAR message[]);

#if defined(__cplusplus) || defined(__cplusplus__)
}
#endif

#endif
//===========================================================================
//=== END INCLUDE FILE ====================================================
//===========================================================================


//===========================================================================
// Title:       RGS_Driver.c
// Purpose:     Driver functions to control the RGS-2000NG using
//              GPIB, Ethernet or Serial.
//
// Created on:  4/10/2017 at 10:12:29 AM by VIAVI Test Solutions.
// Copyright:   VIAVI AvComm. All Rights Reserved.
//===========================================================================
#include <utility.h>

#include <visa.h>
#include <formatio.h>
#include <toolbox.h>
#include "RGS_Driver.h"
#include "test_sys.h"

#define   WAITTIME0_01     0.01     // Seconds wait time
#define   WAITTIME0_02     0.02     // Seconds wait time
#define   WAITTIME0_03     0.03     // Seconds wait time
#define   WAITTIME1_00     1.00     // Seconds wait time
#define   WAITTIME5_00     5.00     // Seconds wait time
#define   WAITTIME7_00     7.00     // Seconds wait time
```

**Example Program (cont)**

```
#define   WAITTIME10_00    10.00      // Seconds wait time

#define TIME_OUT_NORM_VAL 3000

#define MAX_SESSIONS 2

struct {
   ViSession session;
   ViReal64  startTime;
   ViReal64  curWaitTime;
   ViChar    resourceName[40];
} sessionInfo[MAX_SESSIONS] = {{0,0,0,""},{0,0,0,""}};

#define BUFFER_SIZE        512L        // File I/O buffer size

//============================================================================
//=  Driver Specific Error/Warning Codes  ====================================
//============================================================================
#define NOT_AVAILABLE      0xFFFFFC18  // Function Not Available      (-1000)
#define INVALID_SELECTION  0XFFFFFC17  // Invalid device selected     (-1001)
#define NOT_INSTALLED      0XFFFFFC16  // Device  Not installed       (-1002)
#define ABORT_FLAG_SET     0XFFFFFC15  // Test Exec. Abort Flag Set   (-1003)
#define NOT_INITIALIZED    0x3FFFFC01  // Instrument Not Initailized Warning

#define ERR_PARAMETER1     0XFFFFFC13  // Parameter 1 Out-Of-Range.   (-1005)
#define ERR_PARAMETER2     0XFFFFFC12  // Parameter 2 Out-Of-Range.   (-1006)
#define ERR_PARAMETER3     0XFFFFFC11  // Parameter 3 Out-Of-Range.   (-1007)
#define ERR_PARAMETER4     0XFFFFFC10  // Parameter 4 Out-Of-Range.   (-1008)
#define ERR_PARAMETER5     0XFFFFFC0F  // Parameter 5 Out-Of-Range.   (-1009)
#define ERR_PARAMETER6     0XFFFFFC0E  // Parameter 6 Out-Of-Range.   (-1010)
#define ERR_PARAMETER7     0XFFFFFC0D  // Parameter 7 Out-Of-Range.   (-1011)
#define ERR_PARAMETER8     0XFFFFFC0C  // Parameter 8 Out-Of-Range.   (-1012)
#define ERR_PARAMETER9     0XFFFFFC0B  // Parameter 9 Out-Of-Range.   (-1013)
#define ERR_PARAMETER10    0XFFFFFC0A  // Parameter 10 Out-Of-Range.  (-1014)
#define ERR_PARAMETER11    0XFFFFFC09  // Parameter 11 Out-Of-Range.  (-1015)

#define NOT_SUPPORTED      0XFFFFFC03  // Command Not Supported.      (-1021)
#define OPTION_MISSING     0XFFFFFC02  // Option Not Installed.       (-1022)
#define WRONG_INSTRUMENT   0XFFFFFC01  // Incorrect Instrument        (-1023)
#define INVAL_TERMINATION  0XFFFFFC00  // Invalid term character(s).  (-1024)

ViSession       RGSGenSession[MAX_SESSIONS];  // session handle
struct device   RGSGenDevice[MAX_SESSIONS];   // device parameters
ViInt16         RGSGenConnect[MAX_SESSIONS];

//============================================================================
```

**Example Program (cont)**

```
//= INSTRUMENT-DEPENDENT COMMAND ARRAYS
========================================
//===============================================================================
ViInt32 Equal[20];
ViInt32 Separator[20];
ViInt32 i;
ViInt32 j;
ViInt32 bytesRead;
ViChar Buffer[80];
ViChar Buffer1[80];
ViChar Buffer2[80];
ViChar Buffer3[80];
ViChar Buffer4[80];
ViChar Buffer5[80];
ViChar Buffer6[80];
ViChar Buffer7[80];
ViChar Buffer8[80];
ViChar Buffer9[80];
ViChar Buffer10[80];
ViChar Buffer11[80];
ViChar Buffer12[80];
ViChar Buffer13[80];
ViChar Buffer14[80];
ViChar Buffer15[80];
ViChar Buffer16[80];
ViChar Buffer17[80];
ViChar Buffer18[80];
ViChar Buffer19[80];
ViChar tmp_buffer[20][80];
ViChar OutBuffer[100];
ViChar InBuffer[1024];

static char   saved_buffer[2][512];
static long   is_buffer_occupied[2];

//===============================================================================
//======================= Function Prototypes ===================================
//===============================================================================

ViStatus _VI_FUNC RGS_read_IDN (ViSession,ViChar mfg[],ViChar desc[],
                                    ViChar pn[]);

ViStatus RGS_initialize (ViRsrc, ViBoolean,ViBoolean, ViPSession);
ViStatus RGS_initCleanUp (ViSession, ViPSession, ViStatus);
ViStatus RGS_sessionInfoOpen (ViSession, ViRsrc resourceName);
ViStatus RGS_sessionInfoClose (ViSession);
ViStatus RGS_sessionInfoResource (ViSession, ViChar resourceName[]);
```

**Example Program (cont)**

```
ViStatus RGS_nxtCmdWait (ViSession);
ViStatus RGS_nxtCmdLog (ViSession, ViReal64 waitToNxtCmd);
ViBoolean RGS_invalidViBooleanRange (ViBoolean);

static void ClearStoredBuffer(ViSession);
static long ReadAndStoreIntoBuffer(ViSession);

//==========================================================================
//================== User Callable Functions ===============================
//==========================================================================

/*==========================================================================
   This is a list of error codes that may be returned from the callable
   functions below.

   3FFF0005  The specified termination character was read.
   3FFF0006  The specified number of bytes was read.
   BFFF0000  Miscellaneous or system error occurred.
   BFFF000E  Invalid session handle.
   BFFF0015  Timeout occurred before operation could complete.
   FFFFFC16  Device not installed
   FFFFFC17  Invalid device selected
   FFFFFC18  Function not available
   BFFF0034  Violation of raw write protocol occurred.
   BFFF0035  Violation of raw read protocol occurred.
   BFFF0036  Device reported an output protocol error.
   BFFF0037  Device reported an input protocol error.
   BFFF0038  Bus error occurred during transfer.
   BFFF003A  Invalid setup (attributes are not consistent).
   BFFF005F  No listeners condition was detected.
   BFFF0060  This interface is not the controller in charge.
   BFFF0067  Operation is not supported on this session.
==========================================================================*/

//==========================================================================
// Function: RGS_Init
// Purpose:  This function initializes the RGSGen specified in the "Type"
//         input parameter to a known state.
// Parameter List: RGSGen - Generator number, RGSGen1 or RGSGen2
//              RGSGenType[] - "RGS-2000NG" or "NOT INSTALLED"
//              RGSGenPartNumber[] - 113956
//              RGSGenBus[] - "GPIB", "RS232" or "ETHERNET"
//              primaryAddr[] - This is the address used for the unit.
//                          GPIB: 0-32, RS232 1-256 for ethernet it
//                          it should be similar to 10.168.168.2
//              secondary_Adress[] - usually not used set to ""
// Return Values:  Zero on success, non-zero otherwise
```

**Example Program (cont)**

```
//==============================================================================
ViStatus _VI_FUNC RGS_init (ViInt16 RGSGen,
              ViChar RGSGenType[],
              ViChar RGSGenPartNumber[],
              ViChar RGSGenBus[],
              ViChar primaryAddr[],
              ViChar secondaryAddr[])
{
  ViStatus RGS_status = VI_SUCCESS;   // reset error status code
  ViChar resource[50] = {NULL};


  if ((RGSGen <= 0) || (RGSGen > MAX_SESSIONS))
    RGS_status = ERR_PARAMETER1;     // set error status code
  else
  {
    if (RGSGenSession[(RGSGen-1)] != 0)
    {
      if ((RGS_status = RGS_close (RGSGen)) < 0)
        RGSGenSession[(RGSGen-1)] = 0;
    }

    RGSGenSession[(RGSGen-1)] = 0;   // Zero Session Handle
    strcpy (RGSGenDevice[(RGSGen-1)].Type, RGSGenType);
    strcpy (RGSGenDevice[(RGSGen-1)].Pn, RGSGenPartNumber);
    strcpy (RGSGenDevice[(RGSGen-1)].Bus, RGSGenBus);
    strcpy (RGSGenDevice[(RGSGen-1)].PriAddr, primaryAddr);
    strcpy (RGSGenDevice[(RGSGen-1)].SecAddr, secondaryAddr);

      // check for RGSGen 1 = RGS-2000NG and initialize
    if (strcmp(RGSGenDevice[(RGSGen-1)].Type, "SIMULATED") == 0)
    {
      RGS_status = 0;
    }
    else if (strcmp (RGSGenDevice[(RGSGen-1)].Type, "RGS-2000NG") == 0)
    {
      if (strncmp ("GPIB", RGSGenDevice[(RGSGen-1)].Bus, 4) == 0)
      {
        ViRsrc bus;          // communication bus type of device
        ViChar busType[10];   // bus type such as GPIB, VXI or MXI
        // ADD "GPIB::" TO address string for visa inst
        strcpy(busType, RGSGenDevice[(RGSGen-1)].Bus);
        bus = strcat(busType, "::");
        strcpy(bus, busType);
        strcat (bus, RGSGenDevice[(RGSGen-1)].PriAddr);
        strcpy (resource, bus);
```

**Example Program (cont)**

```
    if ((RGS_status = RGS_initialize (resource, VI_OFF, VI_OFF,
                      &RGSGenSession[(RGSGen-1)])) < 0)
    {
      RGSGenSession[(RGSGen-1)] = 0;
    }
    else {
      // Set variable so other driver calls won't bail out
      RGSGenConnect[(RGSGen-1)] = ON;
    }
  }
  else if (strcmp ("RS232", RGSGenDevice[(RGSGen-1)].Bus) == 0)
  {   // RS-232

    if((atoi(RGSGenDevice[(RGSGen-1)].PriAddr)> 0) &&
      (atoi(RGSGenDevice[(RGSGen-1)].PriAddr) <256))
    {
      Fmt (resource, "%s<ASRL%i::INSTR",
                    atoi (RGSGenDevice[(RGSGen-1)].PriAddr));
      if ((RGS_status = RGS_initialize (resource, VI_OFF,
              VI_OFF, &RGSGenSession[(RGSGen-1)])) < 0)
      {
        RGSGenSession[(RGSGen-1)] = 0;
      }
      else {
        RGSGenConfig.baudrate = DEFAULT_BAUD;
        RGSGenConfig.databits = DEFAULT_DBITS;
        RGSGenConfig.parity = DEFAULT_PARITY;
        RGSGenConfig.stopbits = DEFAULT_SBIT;

        // Set resource baud rate
        if ((RGS_status = viSetAttribute (RGSGenSession[(RGSGen-1)],
             VI_ATTR_ASRL_BAUD, RGSGenConfig.baudrate)) < 0)
          return RGS_status;

        if ((RGS_status = viSetAttribute (RGSGenSession[(RGSGen-1)],
            VI_ATTR_ASRL_DATA_BITS, RGSGenConfig.databits)) < 0)
          return RGS_status;

        if (RGSGenConfig.parity == 0)
        {
          if ((RGS_status = viSetAttribute (RGSGenSession[(RGSGen-1)],
                VI_ATTR_ASRL_PARITY, VI_ASRL_PAR_NONE)) < 0)
            return RGS_status;
        }
        else if (RGSGenConfig.parity == 1)
        {
          if ((RGS_status = viSetAttribute (RGSGenSession[(RGSGen-1)],
```

**Example Program (cont)**

```
                  VI_ATTR_ASRL_PARITY, VI_ASRL_PAR_ODD)) < 0)
            return RGS_status;
        }
        else if (RGSGenConfig.parity == 2)
        {
          if ((RGS_status = viSetAttribute (RGSGenSession[(RGSGen-1)],
                  VI_ATTR_ASRL_PARITY, VI_ASRL_PAR_EVEN)) < 0)
            return RGS_status;
        }
        else
          RGS_status = ERR_PARAMETER8;

        if (RGSGenConfig.stopbits == 1)
        {
          if ((RGS_status = viSetAttribute (RGSGenSession[(RGSGen-1)],
                VI_ATTR_ASRL_STOP_BITS, VI_ASRL_STOP_ONE)) < 0)
            return RGS_status;
        }
        else if (RGSGenConfig.stopbits == 2)
        {
          if ((RGS_status = viSetAttribute (RGSGenSession[(RGSGen-1)],
                VI_ATTR_ASRL_STOP_BITS, VI_ASRL_STOP_TWO)) < 0)
            return RGS_status;
        }
        else
          RGS_status = ERR_PARAMETER8;

        if ((RGS_status = viSetAttribute (RGSGenSession[(RGSGen-1)],
            VI_ATTR_ASRL_FLOW_CNTRL, VI_ASRL_FLOW_RTS_CTS)) < 0)
          return RGS_status;

        // Set variable so other driver calls won't bail out
        RGSGenConnect[(RGSGen-1)] = ON;
      }
    }
    else
    {
      RGS_status = ERR_PARAMETER6;   // set error status code
    }
  }
  else if (strcmp ("ETHERNET", RGSGenDevice[(RGSGen-1)].Bus) == 0)
  {   // Ethernet
    Fmt (resource, "TCPIP::%s::2001::SOCKET",
                         RGSGenDevice[(RGSGen-1)].PriAddr);

    if ((RGS_status = RGS_initialize (resource, VI_OFF,
                  VI_OFF, &RGSGenSession[(RGSGen-1)])) < 0)
```

**Example Program (cont)**

```
        {
          RGSGenSession[(RGSGen-1)] = 0;
        }
        else
        {
          // Set variable so other driver calls won't bail out
          RGSGenConnect[(RGSGen-1)] = ON;
        }
      }
      else
        RGS_status = ERR_PARAMETER5;
    }
  }

  return RGS_status;               // return error status code
}

//==============================================================================
// Function: Close
// Purpose:  This function closes the instrument.
// Parameter List: RGSGen - Generator number
// Return Values: Zero on success, non-zero otherwise
//==============================================================================
ViStatus _VI_FUNC RGS_close (ViInt16 RGSGen)
{
  ViSession rmSession;
  ViSession *instPtr;
  ViStatus RGS_status = VI_SUCCESS;

  if ((RGSGen <= 0) || (RGSGen > MAX_SESSIONS))
    RGS_status = ERR_PARAMETER1;   // set error status code
  else
  {
    if (RGSGenConnect[(RGSGen-1)] == OFF)   // Disconnected
    { // do nothing
    }
    else if (strcmp(RGSGenDevice[(RGSGen-1)].Type, "RGS-2000NG") == 0)
    {
      if ((RGS_status = viGetAttribute (RGSGenSession[(RGSGen-1)],
                          VI_ATTR_RM_SESSION, &rmSession)) < 0)
        return RGS_status;

      if ((RGS_status = viGetAttribute (RGSGenSession[(RGSGen-1)],
                            VI_ATTR_USER_DATA, &instPtr)) < 0)
        return RGS_status;

      if ((RGS_status = viClose (RGSGenSession[(RGSGen-1)])) < 0)
```

**Example Program (cont)**

```
        return RGS_status;

      if ((RGS_status = viClose (rmSession)) < 0)
        return RGS_status;

      RGS_status = RGS_sessionInfoClose (RGSGenSession[(RGSGen-1)]);

      if (instPtr != NULL)
        free (instPtr);
    }
  }

  return RGS_status;
}

//===========================================================================
// Function: RGS_writeInstrData
// Purpose:  This function writes a command string to the instrument.
// Parameter List: RGSGen - Generator number
//             writeBuffer - String to write
//             waitToNxtCmd - Delay to next command
// Return Values: Zero on success, non-zero otherwise
//===========================================================================
ViStatus _VI_FUNC RGS_writeInstrData (ViInt16 RGSGen,
                    ViString writeBuffer,
                    ViReal64 waitToNxtCmd)
{
  ViStatus RGS_status = VI_SUCCESS;
  ViChar WriteBuf[200] = "", Terminator[3] = "";
  ViInt32 bytes;
  ViInt16 retry;
  ViUInt16 statusbyte = 0;
  ViChar resourceName[50] = "";
  clock_t   start_time;
  long   device = 0;

  Terminator[0]=0x0d;            // Add CR and null to end of string
  Terminator[1]=0x00;
  Fmt(WriteBuf,"%s<%s%s", writeBuffer, Terminator);
  bytes = strlen (WriteBuf);

  retry = 0;                // Initialize

  if (strcmp (OutBuffer, writeBuffer) != 0)
  {
    strcpy (OutBuffer, writeBuffer);
  }
```

**Example Program (cont)**

```
   if ((RGSGen <= 0) || (RGSGen > MAX_SESSIONS))
      RGS_status = ERR_PARAMETER1;   // set error status code

   if ((RGS_status = RGS_sessionInfoResource (RGSGenSession[(RGSGen-1)],
                                                 resourceName)) < 0)
      return RGS_status;

   if (FindPattern (resourceName, 0, -1, "ASRL", 0, 0) != -1)
   {
 RETRY1:
      // Flush input and output buffer
      if ((RGS_status = viFlush (RGSGenSession[(RGSGen-1)],
                                          VI_WRITE_BUF_DISCARD)) < 0)
         return RGS_status;

      if ((RGS_status = viFlush (RGSGenSession[(RGSGen-1)],
                                          VI_READ_BUF_DISCARD)) < 0)
         return RGS_status;

      // Make sure to wait the minimum amount of time between commands
      if ((RGS_status = RGS_nxtCmdWait (RGSGenSession[(RGSGen-1)])) < 0)
         return RGS_status;

      if ((RGS_status = viWrite (RGSGenSession[(RGSGen-1)],
                              (ViBuf)WriteBuf, bytes, VI_NULL)) < 0)
      {
         // Log this as the last command transmission time
         if ((RGS_status = RGS_nxtCmdLog (RGSGenSession[(RGSGen-1)],
                                                 waitToNxtCmd)) < 0)
            return RGS_status;

         if (retry++ < 1)
            goto RETRY1;
         return RGS_status;
      }

      // Log this as the last command transmission time
      if ((RGS_status = RGS_nxtCmdLog (RGSGenSession[(RGSGen-1)],
                                                 waitToNxtCmd)) < 0)
         return RGS_status;

   }
   else if (FindPattern (resourceName, 0, -1, "GPIB", 0, 0) != -1)
   {
      // Make sure to wait the minimum amount of time between commands
      if ((RGS_status = RGS_nxtCmdWait (RGSGenSession[(RGSGen-1)])) < 0)
```

**Example Program (cont)**

```
      return RGS_status;

    if ((RGS_status = viWrite (RGSGenSession[(RGSGen-1)],
                               (ViBuf)WriteBuf, bytes, VI_NULL)) < 0)
      return RGS_status;
    // Log this as the last command transmission time
    if ((RGS_status = RGS_nxtCmdLog (RGSGenSession[(RGSGen-1)],
                                      waitToNxtCmd)) < 0)
      return RGS_status;

    start_time = clock() ;
    do{
      RGS_status = viReadSTB( RGSGenSession[(RGSGen-1)], &statusbyte ) ;
      if( (clock()-start_time) > 5000 )
        break ;
    }while((statusbyte & 0x20) == 0 ); //Completion BIT not set

    if( (statusbyte & 0x10) != 0 ) //Message Available
    {
      RGS_status = ReadAndStoreIntoBuffer( RGSGenSession[(RGSGen-1)] ) ;

      if((saved_buffer[device][0] == '!') ||
                        (saved_buffer[device][0] == '?')) // error
      {
        ClearStoredBuffer( RGSGenSession[(RGSGen-1)] ) ;
        return RGS_ERROR_COMMAND_ERROR ;
      }
      // normal return from some commands
      if( saved_buffer[device][0] == '*' )
      {
        //ClearStoredBuffer( RGSGenSession[(RGSGen-1)] ) ;
        return RGS_status ;
      }
    }

  }
  else if (FindPattern (resourceName, 0, -1, "TCPIP", 0, 0) != -1)
  {
    // Make sure to wait the minimum amount of time between commands
    if ((RGS_status = RGS_nxtCmdWait (RGSGenSession[(RGSGen-1)])) < 0)
      return RGS_status;

    if ((RGS_status = viWrite (RGSGenSession[(RGSGen-1)],
                               (ViBuf)WriteBuf, bytes, VI_NULL)) < 0)
      return RGS_status;
    // Log this as the last command transmission time
    if ((RGS_status = RGS_nxtCmdLog (RGSGenSession[(RGSGen-1)],
```

**Example Program (cont)**

```
                                               waitToNxtCmd)) < 0)
       return RGS_status;

     // If the command is a querry
     if (FindPattern (WriteBuf, 0, -1, "?", 0, 0) == -1)
     {
     Delay (WAITTIME0_02);
     }
   }
   return RGS_status;
}

//==========================================================================
// Function: RGS_readInstrData
// Purpose:  This function reads the output buffer of the instrument.
// Parameter List: RGSGen - Generator number
//              numberBytesToRead - maximum bytes to read
//              readBuffer - String to write
//              numBytesRead - bytes actually read
// Return Values: Zero on success, non-zero otherwise
//==========================================================================
ViStatus _VI_FUNC RGS_readInstrData (ViInt16 RGSGen,
                     ViInt32 numberBytesToRead,
                     ViChar _VI_FAR readBuffer[],
                     ViPInt32 numBytesRead)
{
   ViInt32 k, index;
   ViChar Buf[1024];
   ViStatus RGS_status = VI_SUCCESS;
   ViInt32 comma = 0, buffer_num = 0;
   long device = 0;
   ViChar resourceName[50] = "";

   *numBytesRead = 0L;

   memset (readBuffer, 0x0, sizeof (readBuffer));
   memset (tmp_buffer, 0x0, sizeof (tmp_buffer));
   memset (Buffer, 0x0, sizeof (Buffer));
   memset (Buffer1, 0x0, sizeof (Buffer1));
   memset (Buffer2, 0x0, sizeof (Buffer2));
   memset (Buffer3, 0x0, sizeof (Buffer3));
   memset (Buffer4, 0x0, sizeof (Buffer4));
   memset (Buffer5, 0x0, sizeof (Buffer5));
   memset (Buffer6, 0x0, sizeof (Buffer6));
   memset (Buffer7, 0x0, sizeof (Buffer7));
   memset (Buffer8, 0x0, sizeof (Buffer8));
   memset (Buffer9, 0x0, sizeof (Buffer9));
```

**Example Program (cont)**

```
memset (Buffer10, 0x0, sizeof (Buffer10));
memset (Buffer11, 0x0, sizeof (Buffer11));
memset (Buffer12, 0x0, sizeof (Buffer12));
memset (Buffer13, 0x0, sizeof (Buffer13));
memset (Buffer14, 0x0, sizeof (Buffer14));
memset (Buffer15, 0x0, sizeof (Buffer15));
memset (Buffer16, 0x0, sizeof (Buffer16));
memset (Buffer17, 0x0, sizeof (Buffer17));
memset (Buffer18, 0x0, sizeof (Buffer18));
memset (Buffer19, 0x0, sizeof (Buffer19));

if ((RGSGen <= 0) || (RGSGen > MAX_SESSIONS))
  RGS_status = ERR_PARAMETER1;   // set error status code

 if ((RGS_status = RGS_sessionInfoResource (RGSGenSession[(RGSGen-1)],
                                            resourceName)) < 0)
  return RGS_status;

// check for data in buffer
if( is_buffer_occupied[device] != 0 )
{
  strncpy( readBuffer, saved_buffer[device], numberBytesToRead-1 );
  readBuffer[numberBytesToRead-1] = 0;
  *numBytesRead = strlen( saved_buffer[device] );
  ClearStoredBuffer( RGSGenSession[(RGSGen-1)] );
  return 0;
}

// Make sure to wait the minimum amount of time between commands
if ((RGS_status = RGS_nxtCmdWait (RGSGenSession[(RGSGen-1)])) < 0)
  return RGS_status;

if ((RGS_status = viRead (RGSGenSession[(RGSGen-1)], (ViPBuf)readBuffer,
        numberBytesToRead, (ViPUInt32)numBytesRead)) < 0)
{  // Retry especially in case of timeout
  // Log this as the last command transmission time
  if ((RGS_status = RGS_nxtCmdLog (RGSGenSession[(RGSGen-1)],
                                   WAITTIME0_03)) < 0)
    return RGS_status;

  memset (readBuffer, 0x0, sizeof (readBuffer));

  if ((RGS_status = RGS_nxtCmdWait (RGSGenSession[(RGSGen-1)])) < 0)
    return RGS_status;

  if ((RGS_status = RGS_writeInstrData(RGSGenSession[(RGSGen-1)],
                    (ViString)OutBuffer, WAITTIME0_03)) < 0)
```

**Example Program (cont)**

```
            return RGS_status;
        // Log this as the last command transmission time
        if ((RGS_status = RGS_nxtCmdLog (RGSGenSession[(RGSGen-1)],
                                                   WAITTIME0_03)) < 0)
            return RGS_status;

        // Make sure to wait the minimum amount of time between commands
        if ((RGS_status = RGS_nxtCmdWait (RGSGenSession[(RGSGen-1)])) < 0)
            return RGS_status;

        if ((RGS_status = viRead (RGSGenSession[(RGSGen-1)], (ViPBuf)readBuffer,
                numberBytesToRead, (ViPUInt32)numBytesRead)) < 0)
            return RGS_status;
    }
    // Log this as the last command transmission time
    if ((RGS_status = RGS_nxtCmdLog (RGSGenSession[(RGSGen-1)],
                                                   WAITTIME0_03)) < 0)
        return RGS_status;

    index = FindPattern (readBuffer, 0, -1, "\r", 0, 0); // Find CR
    if (index != -1)
    {   // Remove line feed
        readBuffer[index] = 0;
        *numBytesRead = strlen (readBuffer);
    }
    else
    {
          if (FindPattern (resourceName, 0, -1, "GPIB", 0, 0) != -1)
        {  // no carrage return on gpib return
        }
        else
        {   // Incomplete read
            return RGS_ERROR_INVALID_COMMAND;
        }
    }

    j = 0;
    memset (Equal, 0, sizeof (Equal));
    memset (Separator, 0, sizeof (Separator));
    for (i = 0; i <= *numBytesRead; ++i)        // Separate parameters
    {
        if (readBuffer[i] == 0x3d)              // =
            Equal[j] = i;                       // Store index of = sign
        if (readBuffer[i] == 0x3b ||            // ;
            (readBuffer[i] == 0xd && Equal[0] != 0) ||  // CR
            (readBuffer[i] == 0xa && Equal[0] != 0      // LF
            && readBuffer[i-1] != 0xd))
```

**Example Program (cont)**

```
    {
      Separator[j] = i;            // Store index of separator
      ++j;
    }
  }
  Separator[j] = i - 1;            // set end of string

  // Parse data with 'equal' separator
  for (k = 0; k < j; ++k)          // extract parameters
  {
    for (i = Equal[k] + 1; i < Separator[k]; ++i)
    {
      Buf[i-(Equal[k] + 1)] = readBuffer[i];
    }

    Buf[i-(Equal[k] + 1)] = 0;     // store values

    if (Equal[k] == 0) break;

    Fmt(tmp_buffer[k], "%s<%s", Buf);
  }

  // Parse data with 'comma' separator
  buffer_num = 0;
  for (index = 0; index < k; index++)
  {
    comma = 0;
    do
    {
      if ((comma = FindPattern (tmp_buffer[index], 0, -1, ",", 0, 0)) != -1)
      {  // Comma found
        switch (buffer_num)
        {
        case 0:
          Fmt (Buffer, "%s<%s[i0w*]", comma, tmp_buffer[index]);
          break;
        case 1:
          Fmt (Buffer1, "%s<%s[i0w*]", comma, tmp_buffer[index]);
          break;
        case 2:
          Fmt (Buffer2, "%s<%s[i0w*]", comma, tmp_buffer[index]);
          break;
        case 3:
          Fmt (Buffer3, "%s<%s[i0w*]", comma, tmp_buffer[index]);
          break;
        case 4:
          Fmt (Buffer4, "%s<%s[i0w*]", comma, tmp_buffer[index]);
```

**Example Program (cont)**

```
    break;
  case 5:
    Fmt (Buffer5, "%s<%s[i0w*]", comma, tmp_buffer[index]);
    break;
  case 6:
    Fmt (Buffer6, "%s<%s[i0w*]", comma, tmp_buffer[index]);
    break;
  case 7:
    Fmt (Buffer7, "%s<%s[i0w*]", comma, tmp_buffer[index]);
    break;
  case 8:
    Fmt (Buffer8, "%s<%s[i0w*]", comma, tmp_buffer[index]);
    break;
  case 9:
    Fmt (Buffer9, "%s<%s[i0w*]", comma, tmp_buffer[index]);
    break;
  case 10:
    Fmt (Buffer10, "%s<%s[i0w*]", comma, tmp_buffer[index]);
    break;
  case 11:
    Fmt (Buffer11, "%s<%s[i0w*]", comma, tmp_buffer[index]);
    break;
  case 12:
    Fmt (Buffer12, "%s<%s[i0w*]", comma, tmp_buffer[index]);
    break;
  case 13:
    Fmt (Buffer13, "%s<%s[i0w*]", comma, tmp_buffer[index]);
    break;
  case 14:
    Fmt (Buffer14, "%s<%s[i0w*]", comma, tmp_buffer[index]);
    break;
  case 15:
    Fmt (Buffer15, "%s<%s[i0w*]", comma, tmp_buffer[index]);
    break;
  case 16:
    Fmt (Buffer16, "%s<%s[i0w*]", comma, tmp_buffer[index]);
    break;
  case 17:
    Fmt (Buffer17, "%s<%s[i0w*]", comma, tmp_buffer[index]);
    break;
  case 18:
    Fmt (Buffer18, "%s<%s[i0w*]", comma, tmp_buffer[index]);
    break;
  case 19:
    Fmt (Buffer19, "%s<%s[i0w*]", comma, tmp_buffer[index]);
    break;
  }
```

**Example Program (cont)**

```
    Fmt (tmp_buffer[index], "%s<%s[i*w*]", comma+1,
       strlen(tmp_buffer[index])-comma-1, tmp_buffer[index]);
  }
  else
  {
    switch (buffer_num)
    {
    case 0:
      strcpy (Buffer, tmp_buffer[index]);
      break;
    case 1:
      strcpy (Buffer1, tmp_buffer[index]);
      break;
    case 2:
      strcpy (Buffer2, tmp_buffer[index]);
      break;
    case 3:
      strcpy (Buffer3, tmp_buffer[index]);
      break;
    case 4:
      strcpy (Buffer4, tmp_buffer[index]);
      break;
    case 5:
      strcpy (Buffer5, tmp_buffer[index]);
      break;
    case 6:
      strcpy (Buffer6, tmp_buffer[index]);
      break;
    case 7:
      strcpy (Buffer7, tmp_buffer[index]);
      break;
    case 8:
      strcpy (Buffer8, tmp_buffer[index]);
      break;
    case 9:
      strcpy (Buffer9, tmp_buffer[index]);
      break;
    case 10:
      strcpy (Buffer10, tmp_buffer[index]);
      break;
    case 11:
      strcpy (Buffer11, tmp_buffer[index]);
      break;
    case 12:
      strcpy (Buffer12, tmp_buffer[index]);
      break;
```

**Example Program (cont)**

```
        case 13:
          strcpy (Buffer13, tmp_buffer[index]);
          break;
        case 14:
          strcpy (Buffer14, tmp_buffer[index]);
          break;
        case 15:
          strcpy (Buffer15, tmp_buffer[index]);
          break;
        case 16:
          strcpy (Buffer16, tmp_buffer[index]);
          break;
        case 17:
          strcpy (Buffer17, tmp_buffer[index]);
          break;
        case 18:
          strcpy (Buffer18, tmp_buffer[index]);
          break;
        case 19:
          strcpy (Buffer19, tmp_buffer[index]);
          break;
        }
      }
      buffer_num++;            // Increment buffer counter
    } while (comma != -1);
  }

  // Check to see if the command was read as a result. If so, there is
  // an error.
  if (strcmp (readBuffer, OutBuffer) == 0)
    return VI_ERROR_INV_RESPONSE;

  return RGS_status;
}

//===========================================================================
//Function: RGS_read_IDN
//Purpose:  This function performs the *IDN? query and returns the Manufacturer
//        Description and part number as strings.
//===========================================================================
ViStatus _VI_FUNC RGS_read_IDN (ViSession instrumentHandle,
                   ViChar mfg[],
                   ViChar desc[],
                   ViChar pn[])
{
  ViStatus RGS_status = VI_SUCCESS;
  ViInt32 pos = -1;
```

**Example Program (cont)**

```
  ViChar tmpchar[100] = {0};

//----------------------------- Output to RGS    --------------------------
  Fmt (OutBuffer, "%s<*IDN?");

  // Change timeout
  if ((RGS_status = viSetAttribute (instrumentHandle, VI_ATTR_TMO_VALUE,
                                    TIME_OUT_NORM_VAL))<0)
    return RGS_status;

  if ((RGS_status = RGS_writeInstrData(instrumentHandle,
                          (ViString)OutBuffer, WAITTIME0_02)) < 0)
    return RGS_status;

//----------------------------- Input Parameters ----------------------------
  if ((RGS_status = RGS_readInstrData (instrumentHandle, 150, InBuffer,
                              &bytesRead)) < 0)
    return RGS_status;

  // Restore
  if ((RGS_status = viSetAttribute (instrumentHandle, VI_ATTR_TMO_VALUE,
                                    TIME_OUT_NORM_VAL))<0)
    return RGS_status;

  mfg[0] = NULL;
  desc[0] = NULL;
  pn[0] = NULL;

  // Manufacturer
  pos = FindPattern (InBuffer, 0, -1, ";", 0, 0);
  if (pos != -1)
  {
    Fmt (mfg, "%s<%s[i0w*]", pos, InBuffer);
    RemoveSurroundingWhiteSpace (mfg);

    strcpy (tmpchar, InBuffer);
    Fmt (InBuffer, "%s<%s[i*w*]", pos+1, (strlen(tmpchar)-pos)-1, tmpchar);
  }
  else
    return RGS_ERROR_INVALID_CONFIGURATION;

  // Instrument description
  pos = FindPattern (InBuffer, 0, -1, ";", 0, 0);
  if (pos != -1)
  {
    Fmt (desc, "%s<%s[i0w*]", pos, InBuffer);
    RemoveSurroundingWhiteSpace (desc);
```

**Example Program (cont)**

```
    strcpy (tmpchar, InBuffer);
    Fmt (InBuffer, "%s<%s[i*w*]", pos+1, (strlen(tmpchar)-pos)-1, tmpchar);
  }
  else
    return RGS_ERROR_INVALID_CONFIGURATION;

  // PN number
  pos = 0;
  if (strlen(InBuffer)>0)
  {
    Fmt (pn, "%s<%s[i0w*]", pos, InBuffer);
    RemoveSurroundingWhiteSpace (pn);
  }
  else
    return RGS_ERROR_INVALID_CONFIGURATION;


  return RGS_status;
}

//==============================================================================
// Function: Reset
// Purpose:  This function resets the instrument.  If the reset function
//           is not supported by the instrument, this function returns
//           the warning VI_WARN_NSUP_RESET.
//==============================================================================
ViStatus _VI_FUNC RGS_reset (ViInt16 RGSGen)
{
  ViStatus RGS_status = VI_SUCCESS;

  if ((RGSGen <= 0) || (RGSGen > MAX_SESSIONS))
    RGS_status = ERR_PARAMETER1;   // set error status code

  //  Initialize the instrument to a known state
  if ((RGS_status = RGS_writeInstrData (RGSGen, ":RGS:RESET",
                                        WAITTIME0_02))< 0)
    return RGS_status;

  Delay (WAITTIME10_00);

  if ((RGS_status = RGS_readInstrData (RGSGen, 150, InBuffer,
                               &bytesRead)) < 0)
  if(FindPattern (InBuffer, 0, -1, "*", 0, 0) == -1)
    return RGS_ERROR_COMMAND_ERROR;

  return RGS_status;
```

**Example Program (cont)**

```
}

//============================================================================
// Function: errorQuery
// Purpose:  This function requests the instrument status.
//           This is only valid on newer versions of the RGS system software
//           after 4/15/2017
//============================================================================
ViStatus _VI_FUNC RGS_errorQuery (ViInt16 RGSGen, ViInt32 *statusCode,
                        ViChar _VI_FAR message[])
{

  ViStatus RGS_status = VI_SUCCESS;

  if ((RGSGen <= 0) || (RGSGen > MAX_SESSIONS))
    RGS_status = ERR_PARAMETER1;   // set error status code

  //  Request the status
  if ((RGS_status = RGS_writeInstrData (RGSGen, ":RGS:STATUS?\r",
                                  WAITTIME0_02))< 0)
    return RGS_status;

  if ((RGS_status = RGS_readInstrData (RGSGen, 150, InBuffer,
                                  &bytesRead)) < 0)
    return RGS_status;

  if((FindPattern (InBuffer, 0, -1, "?", 0, 0) >= 0) ||
               (FindPattern (InBuffer, 0, -1, "!", 0, 0) >= 0))
    return RGS_ERROR_COMMAND_ERROR;

  *statusCode = (ViInt32)atoi(InBuffer);

  Fmt(message,"%s<");

  if( *statusCode & 1)
    Fmt(message,"%s[a]<%s", "Last Command Syntax Error, ");
  if( *statusCode & 2)
    Fmt(message,"%s[a]<%s", "Execution Error, ");
  if( *statusCode & 32)
    Fmt(message,"%s[a]<%s", "Command Complete/Unit Ready ");

// Status byte bit meaning
// D0  Last Command Syntax Error
// D1  Execution Error, Detectable Unit Function Failure.
//               Clear by GPIB command *CLS.
// D4  Transmitter Queue Not Empty (Data available for GPIB read),(GPIB Only)
```

**Example Program (cont)**

```
// D5  Command Complete/Unit Ready

  return RGS_status;
}

//=======================================================================================
//= UTILITY ROUTINES (Non-Exportable Functions) ===================================
//=======================================================================================

//=======================================================================================
// Function: Initialize
// Purpose:  This function opens the instrument, queries the instrument
//          for its ID, and initializes the instrument to a known state.
//=======================================================================================
ViStatus RGS_initialize (ViRsrc resourceName, ViBoolean IDQuery,
          ViBoolean resetDevice, ViPSession instHandle)
{
  ViStatus RGS_status = VI_SUCCESS;
  ViSession rmSession = 0;

  //- Check input parameter ranges -----------------------------
  if (RGS_invalidViBooleanRange (IDQuery))
    return VI_ERROR_PARAMETER2;
  if (RGS_invalidViBooleanRange (resetDevice))
    return VI_ERROR_PARAMETER3;

  //- Open instrument session --------------------------------
  if ((RGS_status = viOpenDefaultRM (&rmSession)) < 0)
    return RGS_status;

  if ((RGS_status = viOpen (rmSession, resourceName, VI_NULL, VI_NULL,
                                          instHandle)) < 0)
  {
    viClose (rmSession);
    return RGS_status;
  }

  // Register this session in the command wait system
  if ((RGS_status = RGS_sessionInfoOpen (*instHandle, resourceName)) < 0)
    return RGS_status;


  if (FindPattern (resourceName, 0, -1, "GPIB", 0, 0) != -1)
  {
    //- Configure VISA Formatted I/O --------------------------
    if ((RGS_status = viSetAttribute(*instHandle,VI_ATTR_TMO_VALUE,
                                  TIME_OUT_NORM_VAL))<0)
```

**Example Program (cont)**

```
        return RGS_initCleanUp (rmSession, instHandle, RGS_status);

      if ((RGS_status = viSetBuf(*instHandle,VI_READ_BUF|VI_WRITE_BUF,4000))<0)
        return RGS_initCleanUp (rmSession, instHandle, RGS_status);

      if ((RGS_status = viSetAttribute (*instHandle, VI_ATTR_WR_BUF_OPER_MODE,
                VI_FLUSH_ON_ACCESS)) < 0)
        return RGS_initCleanUp (rmSession, instHandle, RGS_status);

      if ((RGS_status = viSetAttribute (*instHandle, VI_ATTR_RD_BUF_OPER_MODE,
                VI_FLUSH_ON_ACCESS)) < 0)
        return RGS_initCleanUp (rmSession, instHandle, RGS_status);

      // Send EOI
      if ((RGS_status = viSetAttribute (*instHandle,
                                  VI_ATTR_SEND_END_EN, VI_TRUE))<0)
        return RGS_initCleanUp (rmSession, instHandle, RGS_status);

    }
    else if (FindPattern (resourceName, 0, -1, "ASRL", 0, 0) != -1)
    {
      //- Configure VISA Formatted I/O ------------------------------------
      if ((RGS_status = viSetAttribute (*instHandle, VI_ATTR_TMO_VALUE,
                                          TIME_OUT_NORM_VAL))<0)
        return RGS_initCleanUp (rmSession, instHandle, RGS_status);

      if ((RGS_status = viSetBuf(*instHandle,
                                VI_READ_BUF|VI_WRITE_BUF, 4000))<0)
        return RGS_initCleanUp (rmSession, instHandle, RGS_status);

      if ((RGS_status = viSetAttribute (*instHandle, VI_ATTR_WR_BUF_OPER_MODE,
                                        VI_FLUSH_WHEN_FULL)) < 0)
        return RGS_initCleanUp (rmSession, instHandle, RGS_status);

      if ((RGS_status = viSetAttribute (*instHandle, VI_ATTR_RD_BUF_OPER_MODE,
                                         VI_FLUSH_DISABLE)) < 0)
        return RGS_initCleanUp (rmSession, instHandle, RGS_status);

      if ((RGS_status = viSetAttribute (*instHandle, VI_ATTR_ASRL_END_IN,
                                      VI_ASRL_END_TERMCHAR)) < 0)
        return RGS_initCleanUp (rmSession, instHandle, RGS_status);

      if ((RGS_status = viSetAttribute (*instHandle, VI_ATTR_TERMCHAR_EN,
                                                VI_TRUE))<0)
        return RGS_initCleanUp (rmSession, instHandle, RGS_status);

      if ((RGS_status = viSetAttribute (*instHandle,
```

**Example Program (cont)**

```
                                        VI_ATTR_TERMCHAR, '\n')) < 0)
        return RGS_initCleanUp (rmSession, instHandle, RGS_status);
    }
    else if (FindPattern (resourceName, 0, -1, "TCPIP", 0, 0) != -1)
    {
      //- Configure VISA Formatted I/O -----------------------------------
      if ((RGS_status = viSetAttribute(*instHandle, VI_ATTR_TMO_VALUE,
                                            TIME_OUT_NORM_VAL))<0)
        return RGS_initCleanUp (rmSession, instHandle, RGS_status);

      if ((RGS_status = viSetBuf(*instHandle,
                                 VI_READ_BUF|VI_WRITE_BUF, 4000))<0)
        return RGS_initCleanUp (rmSession, instHandle, RGS_status);

      if ((RGS_status = viSetAttribute (*instHandle, VI_ATTR_WR_BUF_OPER_MODE,
                 VI_FLUSH_ON_ACCESS)) < 0)
        return RGS_initCleanUp (rmSession, instHandle, RGS_status);

      if ((RGS_status = viSetAttribute (*instHandle, VI_ATTR_RD_BUF_OPER_MODE,
                 VI_FLUSH_ON_ACCESS)) < 0)
        return RGS_initCleanUp (rmSession, instHandle, RGS_status);

      if ((RGS_status = viSetAttribute (*instHandle, VI_ATTR_TERMCHAR_EN,
                                                   VI_TRUE))<0)
        return RGS_initCleanUp (rmSession, instHandle, RGS_status);

      if ((RGS_status = viSetAttribute (*instHandle,
                                       VI_ATTR_TERMCHAR, '\n')) < 0)
        return RGS_initCleanUp (rmSession, instHandle, RGS_status);
    }

    if (IDQuery)
    {
      ViChar mfg[50], desc[50], pn[50];
      if ((RGS_status = RGS_read_IDN (*instHandle, mfg, desc, pn)) < 0)
        return RGS_initCleanUp (rmSession, instHandle,
                                          VI_ERROR_FAIL_ID_QUERY);
    }

    //- Reset instrument ---------------------------------------------------
    if (resetDevice)
    {
      if (IDQuery)
        Delay(WAITTIME0_02);
      if ((RGS_status = RGS_reset (*instHandle)) < 0)
        return RGS_initCleanUp (rmSession, instHandle, RGS_status);
    }
```

**Example Program (cont)**

```
  return RGS_status;
}

//============================================================================
// Function: Log session into wait list
// Purpose:  This function adds the session to the open list
//============================================================================
ViStatus RGS_sessionInfoOpen (ViSession instHandle, ViRsrc resourceName)
{
  int index;

  // Check to see if the session handle already exists
  for (index = 0; index < MAX_SESSIONS; index++)
  {
    if (sessionInfo[index].session == instHandle)
      break;
  }
  if (index < MAX_SESSIONS)
    return RGS_ERROR_SESSION_ALREADY_EXITS;

  // Check to see if there is room to open another session handle
  for (index = 0; index < MAX_SESSIONS; index++)
  {
    if (sessionInfo[index].session == 0)
    {
      strcpy (sessionInfo[index].resourceName, resourceName);
      sessionInfo[index].session     = instHandle;
      sessionInfo[index].curWaitTime = WAITTIME0_02;
      sessionInfo[index].startTime   = Timer();

      return VI_SUCCESS;
    }
  }

  // Return error
  return RGS_ERROR_TOO_MANY_SESSIONS;
}

//============================================================================
// Function: Remove session from wait list
// Purpose:  This function removes the session from the open list
//============================================================================
ViStatus RGS_sessionInfoClose (ViSession instHandle)
{
  int index;
```

**Example Program (cont)**

```
    // find session index
    for (index = 0; index < MAX_SESSIONS; index++)
    {
        if (sessionInfo[index].session == instHandle)
            break;
    }
    // Session not open abort
    if (index >= MAX_SESSIONS)
        return RGS_ERROR_CMD_WAIT;

    sessionInfo[index].session      = 0;
    sessionInfo[index].curWaitTime = 0;
    sessionInfo[index].startTime   = 0;
    strcpy (sessionInfo[index].resourceName, "");

    return VI_SUCCESS;
}

//==========================================================================
// Function: Get session from wait list
// Purpose:  This function gets the resource name from the open list
//==========================================================================
ViStatus RGS_sessionInfoResource (ViSession instHandle, ViChar resourceName[])
{
    int index;

    // find session index
    for (index = 0; index < MAX_SESSIONS; index++)
    {
        if (sessionInfo[index].session == instHandle)
            break;
    }
    // Session not open abort
    if (index >= MAX_SESSIONS)
        return RGS_ERROR_CMD_WAIT;

    strcpy (resourceName, sessionInfo[index].resourceName);

    return VI_SUCCESS;
}

//==========================================================================
// Function: Wait to commincate with instrument
// Purpose:  This function waits for the previous mimium delay to have
//           occured before proceeding.
//==========================================================================
ViStatus RGS_nxtCmdWait (ViSession instHandle)
```

**Example Program (cont)**

```
{
   int index;
   double delay;

   // find session index
   for (index = 0; index < MAX_SESSIONS; index++)
   {
      if (sessionInfo[index].session == instHandle)
         break;
   }
   // Invalid Session abort
   if (index >= MAX_SESSIONS)
      return RGS_ERROR_CMD_WAIT;

   // Wait until the minimum delay has been achieved
   do {
      delay = Timer() - sessionInfo[index].startTime;
   } while (delay < sessionInfo[index].curWaitTime);

   return VI_SUCCESS;
}

//=============================================================================
// Function: Log last command transmission
// Purpose:  This function stores the timer count when called to indicate
//           the time when the instrument was last communicated with.
//=============================================================================
ViStatus RGS_nxtCmdLog (ViSession instHandle, ViReal64 waitToNxtCmd)
{
   int index;

   // find session index
   for (index = 0; index < MAX_SESSIONS; index++)
   {
      if (sessionInfo[index].session == instHandle)
         break;
   }

   // Invalid Session abort
   if (index >= MAX_SESSIONS)
      return RGS_ERROR_CMD_WAIT;

   sessionInfo[index].startTime   = Timer();
   sessionInfo[index].curWaitTime = waitToNxtCmd;

   return VI_SUCCESS;
}
```

**Example Program (cont)**

```
//==========================================================================
//  Function Name: ReadAndStoreIntoBuffer()
//        Purpose: Reads over GPIB and stores the result into a buffer.
// Parameter List: instHandle - VISA session handle
//  Return Values: Zero on success, non-zero otherwise
//==========================================================================
static long ReadAndStoreIntoBuffer( ViSession instHandle )
{
   long          device = 0 ;
   unsigned long    ret_count = 0 ;
   long          status ;

   if ((status = RGS_nxtCmdWait (instHandle)) < 0)
      return status;

   status = viRead( instHandle, (unsigned char*) saved_buffer[device],
                                                  511, &ret_count );
         // Log this as the last command transmission time
   if ((status = RGS_nxtCmdLog (instHandle, WAITTIME0_03)) < 0)
      return status;

   saved_buffer[device][ret_count] = 0 ;
   if( status < 0 )
      return status ;

   is_buffer_occupied[device] = (ret_count>0)?1:0 ;
   return status ;
}

//==========================================================================
//  Function Name: ClearStoredBuffer()
//        Purpose: Clears the buffer.
// Parameter List: instHandle - VISA session handle
//  Return Values: Zero on success, non-zero otherwise
//==========================================================================
static void ClearStoredBuffer( ViSession instHandle )
{
   long    device = 0 ;

   saved_buffer[device][0] = 0 ;
   is_buffer_occupied[device] = 0 ;
}

//==========================================================================
// Function: Boolean Value Out Of Range - ViBoolean
// Purpose:  This function checks a Boolean to see if it is equal to VI_TRUE
```

**Example Program (cont)**

```
//          or VI_FALSE. If the value is out of range, the return value is
//          VI_TRUE, otherwise the return value is VI_FALSE.
//============================================================================
ViBoolean RGS_invalidViBooleanRange (ViBoolean val)
{
  return ((val != VI_FALSE && val != VI_TRUE) ? VI_TRUE : VI_FALSE);
}

//============================================================================
// Function: Initialize Clean Up
// Purpose:  This function is used only by the RGS_init function.  When
//          an error is detected this function is called to close the
//          open resource manager and instrument object sessions and to
//          set the instHandle that is returned from RGS_init to
//          VI_NULL.
//============================================================================
ViStatus RGS_initCleanUp (ViSession openRMSession,
           ViPSession openinstHandle, ViStatus currentStatus)
{
   viClose (*openinstHandle);
  viClose (openRMSession);
  *openinstHandle = VI_NULL;

  return currentStatus;
}

//============================================================================
//=== END DRIVER FILE ======================================================
//============================================================================
```

END OF  EXAMPLE PROGRAM

# Chapter 3 - Specifications

RGS-2000NG Performance Specifications

**NOTE: A 60 MINUTE (1 HOUR) WARM-UP PERIOD IS REQUIRED FOR ALL SPECIFICATIONS.**

**SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.**

Please refer to these notes which are referenced throughout product specifications.

| | |
|---|---|
| 1 | Absolute output power under any test condition is limited to the ranges shown for the transmitter power specifications. See “Power” on page 3. |
| 2 | Pulse timing accuracy specifications applicable while transmitters configured for 50/50 ns rise/fall time mode only. |
| 3 | When transitioning between operating modes (high-to-low or low-to-high) a 30-minute waiting period is required for bearing accuracy to return to the stated specifications. |
| 4 | Bearing accuracy specifications apply to the top antenna only when Avidyne OEM selected. |
| 5 | In XPDR test mode antenna measurements are taken from portsT2 and B2 when Collins Magnitude OEM is selected. For all other OEMs measurements are taken from antenna ports T1 and B1. |
| 6 | Pulse-timing, measurement-accuracy specifications applicable for input signals at amplitudes. +33 dBm. |
| 7 | With the exception of Mode S SLS, test-set transmit pulse-timing/amplitude specifications are not guaranteed under any test condition that results in overlapping pulse transmissions. |

# 1. TRANSMITTER

## 1.1 FREQUENCY

| | |
|---|---|
| Range: | 952 to 1223 MHz |
| Resolution: | 100 kHz |
| Accuracy: | ±10 kHz |

## 1.2 POWER

| | |
|---|---|
| Range: | |
| TCAS: | |
| Low Power Mode: | -20 to -90 dBm |
| High Power Mode: | +1 to -69 dBm (not available when Avidyne OEM is selected) |
| XPDR: | -20 to -90 dBm |
| UAT: | +1 to -98 dBm, T1 port only |
| Multi-Receiver (option): | |
| Low Power Mode: | -20 to -90 dBm |
| High Power Mode: | to +1 to -69 dBm |
| Resolution: | 1 dB |
| Accuracy: | ±1 dB, 1030 and 1090 MHz (978 MHz with UAT or Multi-Receiver options installed) |

## 1.3 SPECTRAL PURITY (TYPICAL)

| | |
|---|---|
| Harmonics: | < -50 dBc |
| Spurious: | < -55 dBc, 350 to 1800 MHz |
| Residual FM: | 250 Hz Peak |
| Phase Noise: | < -80 dBc/Hz @ 100 KHz |

## 1.4 DIVERSITY (XPDR)

| | |
|---|---|
| Power[1]: | |
| Range: | ± -20 dB |
| Resolution: | 0.1 dB |
| Accuracy: | ± 1.0 dB |
| Timing: | |
| Range: | ± -1.0 µs |
| Resolution: | 25 ns |
| Accuracy: | ± -10 ns |

## 1.5 PULSE MODULATION

| | |
|---|---|
| On/Off Ratio: | >80 dB, 1030 and 1090 MHz(978 MHz with UAT or Multi-Receiver options installed) |

# 1.6 PULSE CHARACTERISTICS[7]

## 1.6.1 PULSE POSITION[2]

### 1.6.1.1 ATCRBS Replay (TCAS)

| | |
|---|---|
| Nominal (all Pulses): | 1.45 μs (from Previous Pulse) |
| Variable: | |
| Range (from Nominal): | |
| F1: | 0 to 100 ns |
| All Other Pulses: | ±1.0 μs |
| Resolution: | 25 ns |
| Accuracy: | ±10 ns |

### 1.6.1.2 Mode S Reply (TCAS)

| | |
|---|---|
| Nominal: | |
| P1 to P2: | 1.0 μs |
| P1 to P3: | 3.5 μs |
| P1 to P4: | 4.5 μs |
| Variable: | |
| Range (from Nominal): | |
| P1: | 0 to 1 μs |
| P2: | ±1.0 μs |
| P3: | ±1.0 μs |
| P4: | ±1.0 μs |
| Resolution: | 25 ns |
| Accuracy: | ±10 ns |

### 1.6.1.3 ATCRBS Interrogation (XPDR)

| | |
|---|---|
| Nominal: | |
| Mode A: | |
| P1 to P2: | 2.0 μs |
| P1 to P3: | 8.0 μs |
| Mode C: | |
| P1 to P2: | 2.0 μs |
| P1 to P3: | 21.0 μs |
| All Call: | |
| P3 to P4: | 2.0 μs |
| Variable: | |
| Range (from Nominal): | ±1.95 μs |
| Resolution: | 25 ns |
| Accuracy: | |
| P1 to P3: | ±10 ns |
| P1 to P2: | ±15 ns |
| P3 to P4: | ±15 ns |

#### 1.6.1.4 Mode S Interrogation (XPDR)

| | |
|---|---|
| Nominal: | |
| P1 to P2: | 2.0 µs |
| P2 to SPR: | 2.75 µs |
| P6 to SPR: | 1.25 µs |
| P5 to SPR: | 0.4 µs |
| Variable: | |
| Range (from nominal): | |
| P2: | ±1.95 µs |
| SPR: | ±1.0 µs |
| P5: | ±1.95 µs |
| P6: | ±1.95 µs |
| Resolution: | 25 ns |
| Accuracy: | |
| P1 to P2: | ±10 ns |
| P2 to SPR: | ±15 ns |
| P5 to SPR: | ±15 ns |
| P6 to SPR: | ±15 ns |

#### 1.6.1.5 Interference Pulse (XPDR)

| | |
|---|---|
| Variable: | |
| Signal #1 (relative to P1): | -17.5 to 400 µs |
| Signal #2 (relative to Signal #1): | 0 to 400 ns |
| Resolution: | 25 ns |
| Accuracy: | |
| Signal #1: | ±20 ns |
| Signal #2: | ±10 ns |

#### 1.6.1.6 Double/Interlace (XPDR)

| | |
|---|---|
| Variable (P1 to P1): | 0 to 400 µs |
| Resolution: | 25 ns |
| Accuracy: | ±10 ns |

### 1.6.2 PULSE WIDTH[2]

Specified accuracies apply to pulses of width ≥0.2 µs.

#### 1.6.2.1 ATCRBS Reply (TCAS)

| | |
|---|---|
| Nominal (all pulses): | 0.45 µs |
| Variable: | |
| Range (from Nominal): | |
| F1: | -400 to 950 ns |
| All Other Pulses: | ±400 ns |
| Resolution: | 25 ns |
| Accuracy: | ±20 ns |

### 1.6.2.2 Mode S Reply (TCAS)

| | |
|---|---|
| Nominal: | |
| P1: | 0.5 µs |
| P2: | 0.5 µs |
| P3: | 0.5 µs |
| P4: | 0.5 µs |
| Data Bits: | |
| Consecutive 1's or 0's: | 0.5 µs |
| Alternating 1's or 0's: | 1.0 µs |
| Variable: | |
| Range (from Nominal): | |
| P1: | ±400 ns |
| P2: | ±400 ns |
| P3: | ±400 ns |
| P4: | ±400 ns |
| Data bits: | ±100 ns |
| Resolution: | 25 ns |
| Accuracy: | ±20 ns |

### 1.6.2.3 ATCRBS Interrogation (XPDR)

| | |
|---|---|
| Nominal: | |
| P1: | 0.8 µs |
| P2: | 0.8 µs |
| P3: | 0.8 µs |
| P4 Short: | 0.8 µs |
| P4 Long: | 1.6 µs |
| Variable: | |
| Range: | |
| P1: | 0 to 1.95 µs |
| P2: | 0 to 1.95 µs |
| P3: | 0 to 1.95 µs |
| P4: | 0 to 2.75 µs |
| Resolution: | 25 ns |
| Accuracy: | ±10 ns |

### 1.6.2.4 Mode S Interrogation (XPDR)

| | |
|---|---|
| Nominal: | |
| P1: | 0.8 µs |
| P2: | 0.8 µs |
| P5: | 0.8 µs |
| P6 Short: | 16.25 µs |
| P6 Long: | 30.25 µs |

| | |
|---|---|
| Variable: | |
| Range: | |
| P1: | 0.0 to 1.95 µs |
| P2: | 0.0 to 1.95 µs |
| P5: | 0.2 to 1.95 µs |
| P6: | - 0.5 to ±1.45 µs |
| Resolution: | 25 ns |
| Accuracy: | ±10 ns |

#### 1.6.2.5 Interference Pulse (XPDR)

| | |
|---|---|
| Range: | 0.2 to 32 µs |
| Resolution: | 25 ns |
| Accuracy: | ±25 ns |

### 1.6.3 RISE/FALL TIME

#### 1.6.3.1 TCAS Test Mode

| | |
|---|---|
| Low Power Mode | |
| Range (Rise/Fall): | <50/<50 ns<br>75/110 ns<br>100/200 ns<br>230/230 ns<br>600/600 ns |
| Accuracy: | ±25 ns |
| High Power Mode | |
| Range (Rise/Fall): | <50/<50 ns |
| Accuracy: | ±25 ns |

#### 1.6.3.2 XPDR Test Mode

<50/<50 ns fixed

### 1.6.4 PULSE AMPLITUDE (RELATIVE TO P1)[1]

#### 1.6.4.1 TCAS Test Mode

| | |
|---|---|
| ATCRBS Reply (all pulses): | -1/0 dB |
| Mode S Reply (all preamble pulses): | -1/0 dB |
| Video Data Block: | |
| Range: | +3 to -4 dB |
| Resolution: | 1 dB |
| Accuracy: | ±1 dB |

### 1.6.4.2 XPDR Test Mode

| | |
|---|---|
| ATCRBS (all pulses) and Mode S Interrogations (P2, P5, and P6) | |
| Range: | -19 to +9 dB (relative to P1) |
| Resolution: | 1 dB |
| Accuracy: | ±1 dB |
| Interference Pulse: | |
| Range: | -19 to +9 dB (relative to interrogation pulse P1) |
| Resolution: | 1 dB |
| Accuracy: | ±1 dB |

### 1.6.5 PULSE ENABLE (TCAS)

| | |
|---|---|
| Mode S Reply (all preamble pulses): | ON/OFF |
| ATCRBS Reply (all pulses): | ON/OFF |

# 2. INTRUDER SIMULATION TCAS

## 2.1 BEARING SIMULATION[3,4]

### 2.1.1 LOW POWER MODE:

| | |
|---|---|
| Phase Directional: | |
| Range: | 0 to 359° |
| Resolution: | 1° |
| Accuracy: | |
| 4-Port Antenna: | |
| 4-Port Formula: | ±2° |
| Standard Deviation: | <1° at any Simulated Bearing |
| Port-to-Port: | ±4° deviation between any port referenced to port 1 |
| 2-Port Antenna: | |
| Port-to-Port | ±4° |
| Magnitude Directional: | |
| Range: | 0 to 359° |
| Resolution: | 1° |
| Accuracy: | |
| 4-Port Formula: | ±2° |
| Power Table: | ±0.556 dB (equivalent to ±2°) |

### 2.1.2 HIGH POWER MODE:

| | |
|---|---|
| Phase Directional: | |
| Range: | 0 to 359° |
| Resolution: | 1° |
| Accuracy: | 4-Port Formula, ±5° Typical |
| Magnitude Directional: | |
| Range: | 0 to 359° |
| Resolution: | 1° |
| Accuracy: | 4-Port Formula, ±5° Typical |

### 2.1.3 RANGE SIMULATION (TCAS)

| | |
|---|---|
| Range: | |
| Mode S: | 0 to 160 nmi |
| Mode C: | 0.5 to 160 nmi |
| Resolution: | 0.001 nmi |
| Accuracy: | ±200 ft |

### 2.1.4 VELOCITY (TCAS)

| | |
|---|---|
| Range: | 2000 kts |
| Resolution: | 1 kt |
| Accuracy: | ±1 kt |

### 2.1.5 VERTICAL SPEED (TCAS)

| | |
|---|---|
| Range: | ±32,608 ft/min |
| Resolution: | 64 ft/min |
| Accuracy: | ±64 ft/min |

### 2.1.6 ALTITUDE SIMULATION (TCAS)

| | |
|---|---|
| Range: | -1000 to +126700 ft |
| Resolution: | |
| ≤50175 ft altitude: | 25 or 100 ft |
| >50175 ft altitude: | 100 ft |
| Accuracy: | ±25 ft |

# 3. INTERROGATION SPECIFICATIONS (XPDR)

## 3.1 INTERROGATION TABLE/BURST MODE

| | |
|---|---|
| Number of Messages: | 1 to 1000 |
| Interrogations/Burst | 1 to 10,000 |
| Burst Spacing: | |
| Range: | 0 to 20 s (0 s for single-burst transmission) |
| Resolution: | 0.1 s |
| Accuracy | ±100 ms |
| Burst/Trigger: | 1, continuous until Stop command received |

## 3.2 BLOCK TRANSMISSIONS MODE

| | |
|---|---|
| Number of Messages: | |
| TCAS: | 1 to 1000 |
| XPDR: | 1 to 2000 |
| Number of Blocks: | 1 to 50000 or infinite |
| Message Spacing within Block: | |
| Range: | 10 to 99880 μs (maximum spacing limited to the block period minus 120 μs) |
| Resolution: | 1.0 μs |
| Block Period: | |
| Range: | 10 ms to 90 sec |
| Resolution: | 1 ms |
| Accuracy: | ±1 ms |

## 3.3 PRF (INTERROGATIONS, XPDR)

| | |
|---|---|
| Single Interrogation: | |
| Range: | 1 Hz to 10 KHz |
| Resolution: | 1 Hz |
| Accuracy: | 0.1% of setting |

Interrogation Table (Continuous and Burst):

| | |
|---|---|
| Range: | 1 Hz to 10 KHz |
| Resolution: | 1 Hz |
| Accuracy: | 0.1% of setting |

Double Interrogation:

| | |
|---|---|
| Range: | 1 Hz to 10 KHz (PRF in sync or non-sync) |
| Resolution: | 1 Hz |
| Accuracy: | 0.1% of setting |

### 3.4 INTERLACE INTERROGATION:

| | |
|---|---|
| Range: | 1 Hz to 10 KHz |
| Resolution: | 1 Hz |
| Accuracy: | 0.1% of setting |

### 3.5 INTERLACE RATIO:

1:1 to 1:1000

## 4. ANTENNA

### 4.1 VSWR:

<1.4 (978, 1030 and 1090 MHz)

#### 4.1.1 CROSS COUPLING

| | |
|---|---|
| Adjacent and Non-adjacent Ports: | -16 to -20 dB |

#### 4.1.2 RESISTORS:

±10%

## 5. RECEIVER[5]

### 5.1 DECODING:

| | |
|---|---|
| ATCRBS: | Interrogations (TCAS) and Replies (XPDR) |
| Mode S: | Interrogations (TCAS) and Replies (XPDR) |
| UAT: | Ground and Airborne Messages (B1 port only) |

### 5.2 RANGE:

| | |
|---|---|
| 1030 MHz: | +17 to +60 dBm (TCAS) |
| 1090 MHz: | +17 to +60 dBm (XPDR) |
| 978 MHz: | +30 to +57 dBm (UAT Option) |

# 6. MEASUREMENT[5]

## 6.1 POWER (1030 AND 1090 MHZ)

| | |
|---|---|
| Range: | +17 to +60 dBm |
| Resolution: | 0.1dB |
| Accuracy: | ±0.5 dB |

## 6.2 FREQUENCY

| | |
|---|---|
| Pulse Measurement Type: | |
| Range: | |
| 1030 MHz: | ±3 MHz |
| 1090 MHz: | ±3 MHz |
| Resolution: | 1 KHz |
| Accuracy: | ±50 KHz |
| Frequency 1030 Measurement Type (TCAS, DO-186, Mode S, Test-Mode 3 only): | |
| Range: | 1030 MHz (±50 KHz) |
| Resolution: | 100 Hz |
| Accuracy: | ±1 KHz |

## 6.3 PHASE (TCAS)

| | |
|---|---|
| Range: | 0 to 359° (any Port relative to T1/B1) |
| Resolution: | 1° |
| Accuracy: | ±4° |

## 6.4 PULSE SPACING[6]

| | |
|---|---|
| Resolution: | 1 ns |
| Accuracy: | ±10 ns |

## 6.5 PULSE WIDTH[6]

| | |
|---|---|
| Resolution: | 1 ns |
| Accuracy: | ±15 ns |

## 6.6 PULSE RISE/FALL TIME[6]

| | |
|---|---|
| Resolution: | 1 ns |
| Accuracy: | ±15 ns |

## 6.7 REPLY DELAY (XPDR)

| | |
|---|---|
| Resolution: | 25 ns |
| Accuracy: | ±50 ns |

### 6.8 REPLY DELAY JITTER (XPDR)

| | |
|---|---|
| Resolution: | 1 ns |
| Accuracy: | ±20 ns |

### 6.9 PERCENT REPLY (XPDR)

| | |
|---|---|
| Range: | 0 to 100% (Sample size equal to PRF or 200, which is greater.) |
| Resolution: | 0.1% |
| Accuracy: | ±1% |

### 6.10 MODE S SQUITTER (XPDR)

| | |
|---|---|
| Range: | |
| DF11: | 0.01 to 40.0 s |
| DF17: | |
| Airborne Position: | 0.01 to 2.0 s |
| Surface Position: | 0.01 to 15.0 s |
| A/C Identification: | 0.01 to 25.0 s |
| Airborne Velocity: | 0.01 to 2.0 s |
| Event Driven: | 0.01 to 25 s |
| Resolution: | 1 ms |
| Accuracy: | ±1 ms, ±2.5 ppm |

## 7. SCOPE TRIGGER OUTPUT (SCOPE 1 AND SCOPE 2)

### 7.1 WIDTH

| | |
|---|---|
| TCAS: | 2.0 ±0.5 μs |
| XPDR: | 1.0 ±0.5 μs |

### 7.2 POSITION

| | |
|---|---|
| TCAS Test Mode (replies only): | |
| Mode S: | 2.25 ±0.5 μs prior to P1 of reply |
| ATCRBS: | 2.25 ±0.5 μs prior to F1 of reply |
| XPDR Test Mode: | |
| Interrogation: | |
| Default: | -1.0 μs prior to P1 of interrogation |
| Range: | -1 to +600 μs |
| Resolutions: | 25 ns |
| Accuracy: | ±0.5 μs typical |
| Reply: | -1.0 μs prior to F1/P1 of reply (±0.5 μs typical) |

# 8. SUPPRESSOR PULSE (XPDR)

## 8.1 WIDTH

Duration of transmission

## 8.2 POSITION

3.4 ±0.3 μs prior to P1 of interrogation

## 8.3 LEVEL

> 25V

# 9. SPECTRUM ANALYZER PORTS (MOD STRIKE 4 REQUIRED)

Insertion Loss (Antenna Ports to Spectrum Analyzer Outputs):

| | |
|---|---|
| SA AMP: | -31 dB ±5 dB |
| SA Thru: | -59.5 dB ±5 dB |

# 10. PHYSICAL

| | |
|---|---|
| Overall Dimensions: | 10.5 in (H) X 19 in (W) X 24 in (D)<br>(26.7 cm, 48.3 cm, 60.9 cm) |
| Weight: | 43 lbs. (19.5 kg) |

# 11. AC INPUT POWER

| | |
|---|---|
| Voltage Range: | 100 to 240 VAC at 60 to 50 Hz |
| Power Consumption: | 150 W typical |

# 12. ENVIRONMENTAL

| | |
|---|---|
| Temperature: | |
| Full Specified Performance | 23°C (±5°C) |
| Operating: | 0°C to 40°C |
| Storage | 0°C to 71°C |
| Relative Humidity: | 0 to 95% non-condensing |
| Degree of Protection: | IPX-0 |

# 13. COMPLIANCE

CE

UL/EN61010-1

EN 61326-1

MIL-PRF-28800F (Class 3 Device)

# Chapter 4 - Shipping

## 1. SHIPPING TEST SET

### 1.1 INFORMATION

Viavi Test Sets returned to factory for calibration, service or repair must be repackaged and shipped according to the following conditions:

### 1.2 AUTHORIZATION

Do not return any products to factory without first receiving authorization from Viavi Customer Service Department.

**CONTACT:**

Viavi Solutions
Customer Service Dept.

Telephone: (800) 835-2350 (US Only)
(316) 522-4981
FAX: (316) 529-5330

E-Mail: viavisolutions.com/contacts

### 1.3 TAGGING TEST SETS

All Test Sets must be tagged with:

- Identification and address of owner
- Nature of service or repair required
- Model Number
- Serial Number

### 1.4 SHIPPING CONTAINERS

Test Sets must be repackaged in original shipping containers using Viavi packing molds. If original shipping containers and materials are not available, contact Viavi Customer Service for shipping instructions.

### 1.5 FREIGHT COSTS

All freight costs on non-warranty shipments are assumed by the customer.

### 1.6 REPACKING PROCEDURE

Perform the following steps to repack the equipment for shipment (1-4-1, Figure 1):

- Make sure the bottom packing mold is seated on the floor of the shipping container.
- Carefully wrap the Test Set with polyethylene sheeting.
- Place the Test Set into the shipping container, making sure the Test Set is securely seated in the bottom packing mold.
- Place the top packing mold over the top of the Test Set and press down until the top packing mold rests solidly on the Test Set.
- Close the shipping container lids and seal with shipping tape or an industrial stapler. Tie all sides of the shipping container with break resistant rope, twine or equivalent.

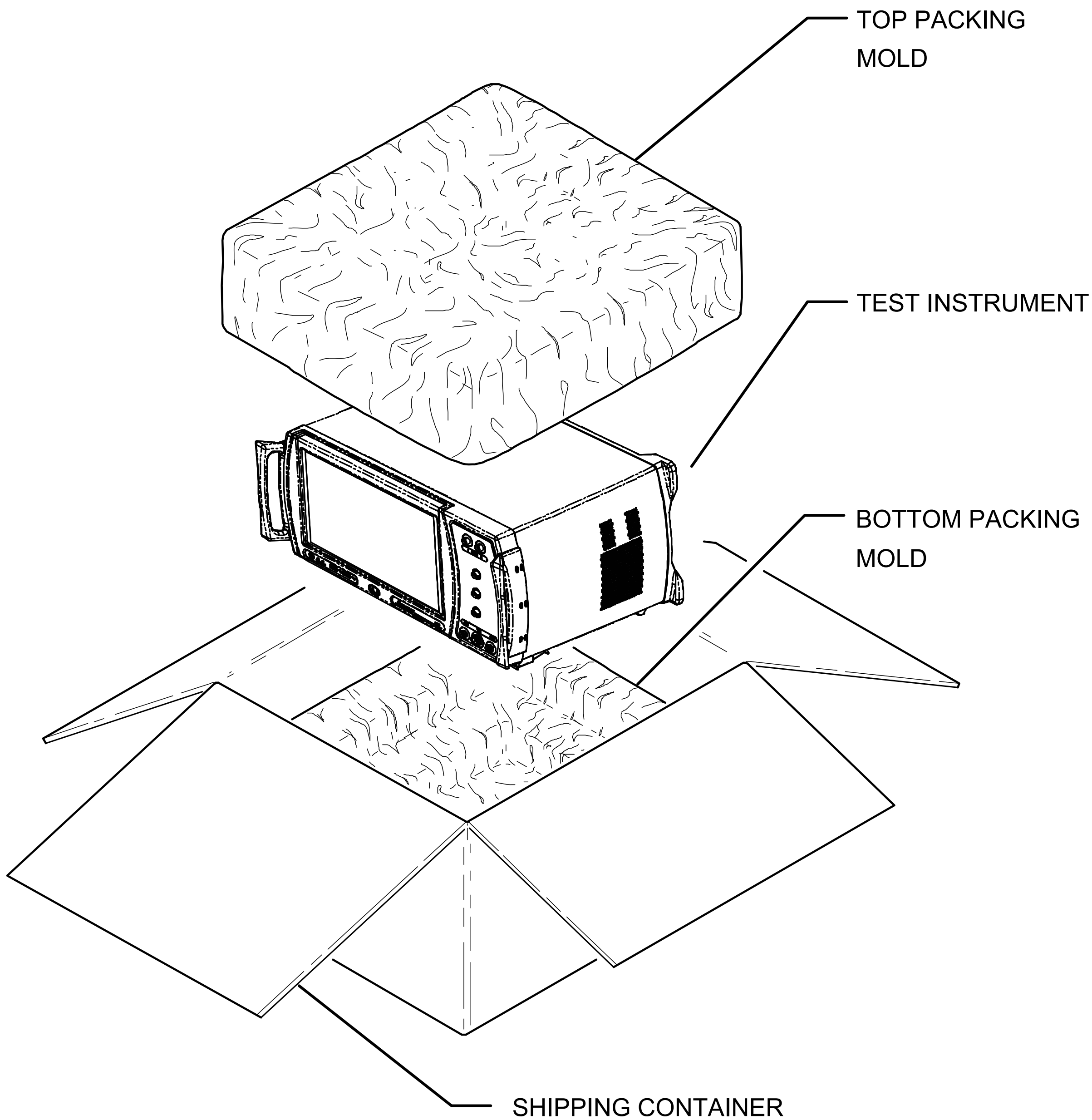



Figure 1.4.1 - 1 Repacking Procedure

# Chapter 5 - Storage

Perform the following storage precautions whenever the Test Set is stored for extended periods (more than six months):

- Disconnect the Test Set from any electrical power source.
- Store the Test Set and other accessories together.
- Refer to Section 3 - Specifications, for proper storage environment.

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# Appendix A - Connector Pin-Out Tables

## A.1 I/O CONNECTORS - FRONT PANEL


Table A.1 - 1 Front Panel I/O Connectors

| CONNECTOR | TYPE | INPUT/OUTPUT |
|---|---|---|
| ATE LINE | D-SUB (37 Pin) | Input/Output |
| | Refer to Appendix A, Table 4 for ATE LINE Connector description. | |
| B1 (Antenna) | D-Type | Input/Output |
| B2 (Antenna) | D-Type | Input/Output |
| B3 (Antenna) | D-Type | Input/Output |
| B4 (Antenna) | D-Type | Input/Output |
| LAN | RJ45 | Input/Output |
| | Refer to Appendix A, Table 6 for LAN Connector description. | |
| SCOPE | BNC | Output |
| SUPP | BNC | Input/Output |
| T1 (Antenna) | D-Type | Input/Output |
| T2 (Antenna) | D-Type | Input/Output |
| T3 (Antenna) | D-Type | Input/Output |
| T4 (Antenna) | D-Type | Input/Output |

Table A.1 - 1 Front Panel I/O Connectors

| CONNECTOR | TYPE | INPUT/OUTPUT |
|---|---|---|
| USB (A) | USB 2.0 Type A | Input/Output |
| | Refer to Appendix A, Table 7 for USB (A) Connector description. | |
| USB (B) | USB 2.0 Type B | Input/Output |
| | Refer to Appendix A, Table 8 for USB (B) Connector description. | |

## A.2 I/O CONNECTORS - REAR PANEL


Table A.1 - 2 Rear Panel I/O Connectors

| CONNECTOR | TYPE | INPUT/OUTPUT |
|---|---|---|
| EXTERNAL PULSE MODULATION | BNC | Input |
| | Refer to <Hyperlink>A.4, External Pulse Modulation BNC Connector I/O Characteristics for External Pulse Modulation Connector description. | |
| SA THRU | SMA | Output |
| SA AMP | SMA | Output |
| SCOPE | BNC | Output |
| SUPP | BNC | Input/Output |
| ATE LINE | D-SUB (37 Pin) | Input/Output |
| | Refer to Appendix A, Table 4 for ATE LINE Connector description. | |
| AUX CONTROL | D-SUB (25 Pin) | Input/Output |
| GPIB BUS | Amphenol Type 57 | Input/Output |
| | Refer to Appendix A, Table 5 for GPIB BUS Connector description. | |
| LAN | RJ45 | Input/Output |
| | Refer to Appendix A, Table 5 for LAN Connector description. | |

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## A.3 EXTERNAL PULSE MODULATION I/O CONNECTORS

| TEST MODE | *BNC #1 | *BNC #2 | *BNC #3 | *BNC #4 | *BNC #5 | *BNC #6 |
|---|---|---|---|---|---|---|
| TCAS (RGS only) | PPS (pulse per second) input signal for GPS sync | GPS time message input (RX UTC time from GPS)<br>Trimble TSIP protocol-message 0x8F 0xAB | ATCRBS reply trigger input<br>(for test only) | ATE output (Collins OEM only)<br>1 = Mode S<br>0 = Mode C | ATE line clock output (Collins OEM only) | TISI sync output (Collins OEM only) |
| TCAS, Selex OEM<br>(RGS only) | PPS (pulse per second) input signal for GPS sync | GPS time message input (RX UTC time from GPS)<br>Trimble TSIP protocol-message 0x8F 0xAB | TOMR output<br>10 us transmission pre-trigger | unused I/O | unused I/O | unused I/O |
| Transponder | PPS (not used in this test mode) | GPS time message input (RX UTC time from GPS)<br>Trimble TSIP protocol-message 0x8F 0xAB | scope sync output | unused I/O | unused I/O | unused I/O |

| TEST MODE | *BNC #1 | *BNC #2 | *BNC #3 | *BNC #4 | *BNC #5 | *BNC #6 |
|---|---|---|---|---|---|---|
| UAT/Multi-Receiver | PPS (pulse per second) input signal for GPS sync | GPS time message input (RX UTC time from GPS) Trimble TSIP protocol-message 0x8F 0xAB | unused I/O | unused I/O | unused I/O | PPS (pulse per second), ouput simulating GPS sync |
| DME (ATC only) | PPS (not used in this test mode) | GPS time message input (not used in this test mode) | RNAV output (planned) | unused I/O | distance marker output, pulse for every change of 10 nmi in distance (for test only) | velocity marker output, pulse for every change of 50 knts velocity (for test only) |

*3.3V CMOS input/output

## A.4 EXTERNAL PULSE MODULATION BNC CONNECTOR I/O CHARACTERISTICS

Table A.1 - 3 External Pulse Modulation BCN Connectors Pin-Out Table

| BNC CONNECTOR | CONNECTOR NAME | I/O CHARACTERISTICS |
|---|---|---|
| 1 | EXT_PULSE_1 | *3.3 V CMOS input/output |
| 2 | EXT_PULSE_2 | *3.3 V CMOS input/output |
| 3 | EXT_PULSE_3 | *3.3 V CMOS input/output |
| 4 | EXT_PULSE_4 | *3.3 V CMOS input/output |
| 5 | EXT_PULSE_5 | *3.3 V CMOS input/output |
| 6 | EXT_PULSE_6 | *3.3 V CMOS input/output |

## A.5 ATE LINE CONNECTOR PIN-OUT TABLE

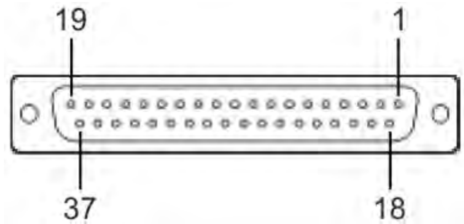


Figure A.1 - 1 ATE Line Connector Pin-Out Diagram

Table A.1 - 4 ATE Line Connector Pin-Out Table

| PIN NO. | SIGNAL NAME | DESCRIPTION |
|---|---|---|
| 1 | GND | GND |
| 2 | GND | GND |
| 3 | ATE_SPARE_Out1 | Open Collector Output |
| 4 | ATE_SPARE_Out2 | Open Collector Output |
| 5 | ATE_SPARE_Out3 | Open Collector Output |
| 6 | ATE_SPARE_Out4 | Open Collector Output |
| 7 | ATE_SPARE_Out5 | Open Collector Output |
| 8 | ATE_SPARE_Out6 | Open Collector Output |
| 9 | ATE_SPARE_Out7 | Open Collector Output |
| 10 | ATE_SPARE_IN5 | +5 V CMOS Input |
| 11 | ATE_SPARE_IN6 | +5 V CMOS Input |
| 12 | ATE_SPARE_IN7 | +5 V CMOS Input |
| 13 | ARINC_429_INA | ARINC 429 INA |
| 14 | ARINC_429_INB | ARINC 429 INB |
| 15 | ARINC_429_OutA | ARINC 429 OutA |
| 16 | ARINC_429_OutB | ARINC 429 OutB |
| 17 | ATE_SPARE_IN8 | +5 V CMOS Input |
| 18 | +5.0V | +5.0 V Out |
| 19 | GND | GND |

Table A.1 - 4 ATE Line Connector Pin-Out Table

| PIN NO. | SIGNAL NAME | DESCRIPTION |
|---|---|---|
| 20 | GND | GND |
| 21 | ATE_SPARE_IN1 | +5 V CMOS Input |
| 22 | ATE_SPARE_IN2 | +5 V CMOS Input |
| 23 | ATE_SPARE_IN3 | +5 V CMOS Input |
| 24 | ATE_SPARE_IN4 | +5 V CMOS Input |
| 25 | ATE_D0 | +5 V CMOS Input |
| 26 | ATE_D1 | +5 V CMOS Input |
| 27 | ATE_D2 | +5 V CMOS Input |
| 28 | ATE_D3 | +5 V CMOS Input |
| 29 | ATE_D4 | +5 V CMOS Input |
| 30 | ATE_D5 | +5 V CMOS Input |
| 31 | ATE_D6 | +5 V CMOS Input |
| 32 | ATE_D7 | +5 V CMOS Input |
| 33 | ATE_CK | +5 V CMOS Input |
| 34 | ATE_A0 | +5 V CMOS Input |
| 35 | ATE_A1 | +5 V CMOS Input |
| 36 | ATE_A2 | +5 V CMOS Input |
| 37 | GND | GND |

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## A.6 ATE CONNECTOR MULTI-PURPOSE APPLICATION

| Pin | Signal Name | Buffer Dir | Cable 20-6632-0001 | Cable 20-6633-0001 | Cable 20-6634-0001 | Cable 20-6636-0001 | Cable 20-6637-0001 |
|---|---|---|---|---|---|---|---|
| 1 | GND | GND | | GND | GND | | GND |
| 2 | GND | GND | | GND | GND | | GND |
| 3 | ATE_SPARE_OUT_1 | Out | | | | | |
| 4 | ATE_SPARE_OUT_2 | Out | | | | | |
| 5 | ATE_SPARE_OUT_3 | Out | | | | | |
| 6 | ATE_SPARE_OUT_4 | Out | | | | | |
| 7 | ATE_SPARE_OUT_5 | Out | | | | | |
| 8 | ATE_SPARE_OUT_6 | Out | | | | | |
| 9 | ATE_SPARE_OUT_7 | Out | | | | | |
| 10 | ATE_SPARE_IN_5 | In | | WS4 | WS4 | WS4 | WS4 |
| 11 | ATE_SPARE_IN_6 | In | | WS5 | WS5 | WS5 | WS5 |
| 12 | ATE_SPARE_IN_7 | In | | WS6 | WS6 | WS6 | WS6 |
| 13 | ARINC_429_IN_A | In | | | | | |
| 14 | ARINC_429_IN_B | In | | | | | |
| 15 | ARINC_429_OUT_A | Out | | | | | |
| 16 | ARINC_429_OUT_B | Out | | | | | |
| 17 | ATE_SPARE_IN_8 | In | | WS7 | WS7 | WS7 | WS7 |

| Pin | Signal Name | Buffer Dir | Cable 20-6632-0001 | Cable 20-6633-0001 | Cable 20-6634-0001 | Cable 20-6636-0001 | Cable 20-6637-0001 |
|---|---|---|---|---|---|---|---|
| 18 | +5.0V | PWR | | +5V | +5V | | |
| 19 | GND | GND | | GND | GND | | |
| 20 | GND | GND | | GND | GND | GND | |
| 21 | ATE_SPARE_IN_1 | In | | WS0 | WS0 | WS0 | WS0 |
| 22 | ATE_SPARE_IN_2 | In | | WS2 | WS2 | WS1 | WS2 |
| 23 | ATE_SPARE_IN_3 | In | | WS1 | WS1 | WS2 | WS1 |
| 24 | ATE_SPARE_IN_4 | In | | WS3 | WS3 | WS3 | WS3 |
| 25 | ATE_D0 | In | TDO0 | MODE C/S | MODE C/S | MODE C/S | MODE C/S |
| 26 | ATE_D1 | In | TDO1 | TOP/BOT | TOP/BOT | TOP/BOT | TOP/BOT |
| 27 | ATE_D2 | In | TDO2 | DIR/OMNI | DIR/OMNI | DIR/OMNI | DIR/OMNI |
| 28 | ATE_D3 | In | TDO3 | Q/LSB | Q/LSB | Q/LSB | Q/LSB |
| 29 | ATE_D4 | In | TDO4 | Q/MSB | Q/MSB | Q/MSB | Q/MSB |
| 30 | ATE_D5 | In | TDO5 | T/LSB | T/LSB | TT0 | TT0 |
| 31 | ATE_D6 | In | TDO6 | T/MSB | T/MSB | TT1 | TT1 |
| 32 | ATE_D7 | In | TDO7 | GETRDY | GETRDY | GETRDY | GETRDY |
| 33 | ATE_CK | In | TDWR | GETRDY | GETRDY | GETRDY | GETRDY |
| 34 | ATE_A0 | In | TAO0 | MLTD | | XCPL | |
| 35 | ATE_A1 | In | TAO1 | MSTD | | | |

| Pin | Signal Name | Buffer Dir | Cable 20-6632-0001 | Cable 20-6633-0001 | Cable 20-6634-0001 | Cable 20-6636-0001 | Cable 20-6637-0001 |
|---|---|---|---|---|---|---|---|
| 36 | ATE_A2 | In | | SOS | SOS | | SOS |
| 37 | GND | GND | | | | | |

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## A.7 AUXILIARY CONTROL CONNECTOR PIN-OUT

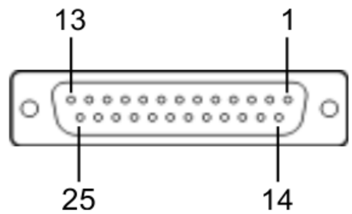


Figure A.1 - 2 Auxiliary Control Connector Pin-Out Diagram

Table A.1 - 5 Auxiliary Control Connector Pin-Out Table

| PIN NO. | PIN NAME | DESCRIPTION |
|---|---|---|
| 1 | nPRG_EN | LVDS Output |
| 2 | GND | GND |
| 3 | GND | GND |
| 4 | GND | GND |
| 5 | GND | GND |
| 6 | SPICSn | LVDS Output |
| 7 | SPICLKp | LVDS Output |
| 8 | GND | GND |
| 9 | SPIDIn | LVDS Input |
| 10 | SPIDOp | LVDS Output |
| 11 | GND | GND |
| 12 | +12 V | +12 V Out |
| 13 | +12 V | +12 V Out |
| 14 | B_NCSO | LVDS Output |
| 15 | B_DCLK | LVDS Output |
| 16 | B_DATA | LVDS Output |
| 17 | B_ASDO | LVDS Output |
| 18 | SPICSp | LVDS Output |
| 19 | GND | GND |

Table A.1 - 5 Auxiliary Control Connector Pin-Out Table

| PIN NO. | PIN NAME | DESCRIPTION |
|---|---|---|
| 20 | SPICLKn | LVDS Output |
| 21 | SPIDIp | LVDS Input |
| 22 | GND | GND |
| 23 | SPIDOn | LVDS Output |
| 24 | +12 V | +12 V Out |
| 25 | +12 V | +12 V Out |

## A.8 GPIB BUS CONNECTOR PIN-OUT TABLE

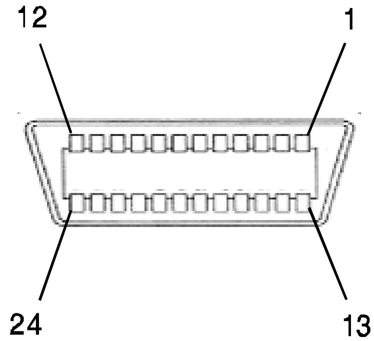


Figure A.1 - 3 GPIB Bus Connector Pin-Out Diagram

Table A.1 - 6 GPIB BUS Connector Pin-Out Table

| PIN NO. | SIGNAL NAME |
|---|---|
| 1 | D101 |
| 2 | D102 |
| 3 | D103 |
| 4 | D104 |
| 5 | EOI |
| 6 | DAV |
| 7 | NRFD |
| 8 | NDAC |
| 9 | IFC |
| 10 | SRQ |
| 11 | ATN |
| 12 | SHIELD |
| 13 | D105 |
| 14 | D106 |
| 15 | D107 |
| 16 | D108 |
| 17 | REN |

Table A.1 - 6 GPIB BUS Connector Pin-Out Table

| PIN NO. | SIGNAL NAME |
|---|---|
| 18 | GND |
| 19 | GND |
| 20 | GND |
| 21 | GND |
| 22 | GND |
| 23 | GND |
| 24 | GND |

## A.9 LAN CONNECTOR PIN-OUT TABLE

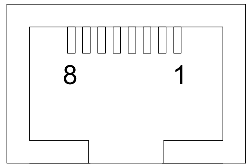


Figure A.1 - 4 LAN Connector Pin-Out Diagram

Table A.1 - 7 LAN Connector Pin-Out Table

| PIN NO. | SIGNAL NAME |
|---|---|
| 1 | TX+ |
| 2 | TX- |
| 3 | RX+ |
| 4 | NOT USED |
| 5 | NOT USED |
| 6 | RX- |
| 7 | NOT USED |
| 8 | NOT USED |

## A.10 USB (A) CONNECTOR PIN-OUT TABLE

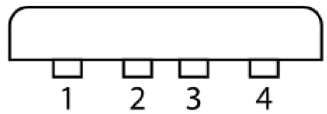


Figure A.1 - 5 USB (A) Connector Pin-Out Diagram

Table A.1 - 8 USB (A) Connector Pin-Out Table

| PIN NO. | SIGNAL NAME |
|---|---|
| 1 | VCC |
| 2 | DATA- |
| 3 | DATA+ |
| 4 | GND |

## A.11 USB (B) CONNECTOR PIN-OUT TABLE

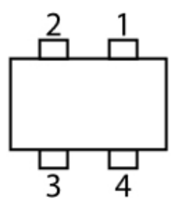


Figure A.1 - 6 USB (B) Connector Pin-Out Diagram

Table A.1 - 9 USB (B) Connector Pin-Out Table

| PIN NO. | SIGNAL NAME |
|---|---|
| 1 | VBUS (5 V) |
| 2 | DATA- |
| 3 | DATA+ |
| 4 | GND |

# Appendix B - Metric/British Imperial Conversion Table with Nautical Distance Conversions

| TO CONVERT: | INTO: | MULTIPLY BY: | TO CONVERT: | INTO: | MULTIPLY BY: |
|---|---|---|---|---|---|
| cm | feet | 0.03281 | meters | feet | 3.281 |
| cm | inches | 0.3937 | meters | inches | 39.37 |
| feet | cm | 30.48 | m/sec | ft/sec | 3.281 |
| feet | meters | 0.3048 | m/sec | km/hr | 3.6 |
| ft/sec | km/hr | 1.097 | m/sec | miles/hr | 2.237 |
| ft/sec | knots | 0.5921 | miles | feet | 5280 |
| ft/sec | miles/hr | 0.6818 | miles | km | 1.609 |
| ft/sec$^2$ | cm/sec$^2$ | 30.48 | miles | meters | 1609 |
| ft/sec$^2$ | m/sec$^2$ | 0.3048 | miles | nmi | 0.8684 |
| grams | ounces | 0.03527 | miles/hr | ft/sec | 1.467 |
| inches | cm | 2.54 | miles/hr | km/hr | 1.609 |
| kg | pounds | 2.205 | miles/hr | knots | 0.8684 |
| kg/cm$^2$ | psi | 0.0703 | nmi | feet | 6080.27 |
| km | feet | 3281 | nmi | km | 1.8532 |
| km | miles | 0.6214 | nmi | meters | 1853.2 |
| km | nmi | 0.5396 | nmi | miles | 1.1516 |
| km/hr | ft/sec | 0.9113 | ounces | grams | 28.34953 |
| km/hr | knots | 0.5396 | pounds | kg | 0.4536 |
| km/hr | miles/hr | 0.6214 | psi | kg/cm$^2$ | 0.0703 |
| knots | ft/sec | 1.689 | 100 ft | km | 3.048 |
| knots | km/hr | 1.8532 | 100 ft | miles | 1.894 |
| knots | miles/hr | 1.1516 | 100 ft | nmi | 1.645 |

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# Appendix C - Abbreviations

| | | |
|---|---|---|
| | A | |
| A | Amperes | |
| AC | Alternating Current | |
| A/C | ATCRBS | |
| AM | Amplitude Modulation | |
| Ant, ANT | Antenna | |
| AP | Address Parity | |
| AQ | Acquisition | |
| ATCRBS | Air Traffic Control Radio Beacon System | |
| ATE | Automated Test Equipment | |
| ATTN | Attenuation | |
| AUTO | Automatic | |
| AUX | Auxiliary | |
| | B | |
| Bar | Barometric | |
| BAT | Battery | |
| BD | BDS Register | |
| bps | Bits per Second | |
| BRG | Bearing | |
| | C | |
| C | Celsius or Centigrade | |
| CA | Transponder Capability | |
| CAL | Calibration | |
| ccw | Counterclockwise | |
| CDI | Course Deviation Indication | |
| Ch | Channel | |
| cm | Centimeter ($10^{-2}$ Meters) | |
| COMM | Communication | |
| cont | Continued | |
| CSV | Comma-Separated Values | |
| CW | Continuous Waveform | |
| cw | Clockwise | |
| | D | |
| dB | Decibel | |
| dBc | Decibels below Carrier | |
| dBm | Decibels above one Milliwatt | |
| DC | Direct Current | |
| DDM | Double Depth Modulation | |
| deg | Degrees | |
| DF | Downlink Format | |
| DEL | Delete | |
| DEV | Deviation | |
| DHCP | Dynamic Host Configuration Protocol | |
| DIAGS | Diagnostics | |
| Dir | Directional | |
| DF | Direction Finding | |
| DR | Downlink Request | |
| DSP | Digital Signaling Processing | |
| DWN | Down | |

**E**

| | |
|---|---|
| EMC | Electromagnetic Compatibility |
| EXT | External |

**F**

| | |
|---|---|
| FEC | Forward Error Correction |
| FM | Frequency Modulation |
| FPGA | Field Programmable Gate Array |
| FREQ | Frequency |
| FRUIT | False Reply Uncorrelated in Time |
| FS | Flight Status |
| Ft | Foot/Feet |
| Ft/Min | Feet per Minute |

**G**

| | |
|---|---|
| Gen, GEN | Generator or Generate |
| Geo | Geometric |
| GND | Ground |
| GPIB | General Purpose Instrument Bus |
| GPS | Global Positioning System |
| G/S | Glideslope |

**H**

| | |
|---|---|
| Hr | Hour |
| Hrs | Hours |
| H/W | Hardware |
| Hz | Hertz |

**I**

| | |
|---|---|
| IFR | Instrument Flight Rules |
| ILS | Instrument Landing System |
| Imf | Interrupt Master Enable Flag |
| Intr, Interr | Interrogation |
| I/O | Input/Output |
| IP | Internet Protocol |
| IPX | Ingress Protection |

**K**

| | |
|---|---|
| kg | Kilogram ($10^3$ Grams) |
| kHz | Kilohertz ($10^3$ Hertz) |
| km | Kilometer ($10^3$ meters) |
| kt | Knot / Knots (Velocity) |
| kts | Knots (Velocity) |

**L**

| | |
|---|---|
| LAN | Local Area Network |
| LCD | Liquid Crystal Display |
| LED | Light Emitting Diode |
| LOC | Localizer |
| LRU | Line Replaceable Unit |
| LSB | Least Significant Bit |
| LVL | Level |

**M**

| | |
|---|---|
| m | Meters |
| MAX | Maximum |
| MB | Message, COMM-B |
| MHz | Megahertz ($10^6$ Hertz) |
| min | Minutes |
| MOD | Modulation |
| mm | Millimeter ($10^{-3}$ Meters) |
| M MOD | Master Modulation |
| ms | Millisecond ($10^{-3}$ Seconds) |
| MSB | Most Significant Bit |
| MSO | Message Start Opportunity |
| mV | Millivolt |
| mW | Milliwatt |

**N**

| | |
|---|---|
| N/A | Not Applicable |
| NAV | Navigation |
| nmi | Nautical Miles |
| ns, nsecs | Nanosecond ($10^{-9}$ Seconds) |

**O**

| | |
|---|---|
| OEM | Original Equipment Manufacturer |
| OUT | Output |

**P**

| | |
|---|---|
| para | Paragraph |
| PARAM | Parameter |
| ppm | Parts per Million |
| PREV | Previous |
| psi | Pounds per Square Inch |
| PWR | Power |

**R**

| | |
|---|---|
| RAM | Random Access Memory |
| RES | Resolution |
| RF | Radio Frequency |
| RI | Runway Incursion |
| RL | Reply Length |
| RMS | Root Mean Square |
| ROM | Read Only Memory |
| Rx, RX | Receiver |

**S**

| | |
|---|---|
| SA | Spectrum Analyzer |
| SDF | Software Development Folder (Compact Database File) |
| sec, secs | Seconds |
| SELCAL | Selective Calling |
| Sig Gen | Signal Generator |
| SL | Sensitivity Level |
| SLS | Side Lobe Suppression |
| SP | Spacing |
| SPM | Scans per Minute |
| SPR | Synchronous Phase Reversal |
| SQTR | Squitter |
| Sqtr | Squitter |
| SRQ | Service Request |
| SPR | Sync Phase Reversal |
| SRS | Segment Request Subfield |
| SSR | Secondary Surveillance Radar |
| STD | Standard |
| SUPP | Suppressor / Suppression |
| SWP | Sweep |
| SWR | Standing Wave Ratio |
| SYNC | Synchronous |

**T**

| | |
|---|---|
| TCAS | Traffic Collision Avoidance System |
| TCP/IP | Transmission Control Protocol/Internet Protocol |
| Traf Proc | Traffic Protocol |
| Tx, TX | Transmit |

**U**

| | |
|---|---|
| UAT | Universal Access Transceiver |
| UF | Uplink Format |
| UHF | Ultra High Frequency |
| USB | Universal Serial Bus |
| UM | Utility Message |
| UTC | Universal Time Coordinate |
| UUT | Unit Under Test |

**V**

| | |
|---|---|
| V | Volt |
| VAC | Volts, Alternating Current |
| VAR | Variable |
| Vdc | Volts, Direct Current |
| VHF | Very High Frequency |
| VOR | Very High Frequency Omni-Directional Radio Range |
| Vrms | Volts Root Mean Square |
| VSWR | Voltage Standing Wave Ratio |

**W**

| | |
|---|---|
| W | Watt |
| WS | Whisper Shout |

### X

| | |
|---|---|
| XPDR | Transponder |
| μA | Microamps |
| μs, μsecs | Microseconds |
| μW | Microwatts |
| Ω | Ohm |

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# Appendix D - SDX Compatibility Command Set Table

| SDX COMMAND | SUPPORTED / NOT SUPPORTED | COMMENTS | RGS-2000NG EQUIVALENT (OR SIMILAR) |
|---|---|---|---|
| **INSTRUMENT COMMANDS** | | | |
| :INSTrument ATCRBS | Supported | | :RGS2000:SCENARIO:TYPE XPDR<br>:RGS2000:XPDR:TYPE 0<br>:RGS2000:XPDR:MODE |
| :INSTrument MODES | Supported | | :RGS2000:SCENARIO:TYPE XPDR<br>:RGS2000:XPDR:TYPE 2 |
| :INSTrument DATALINK | Not Supported | Datalink is a legacy transponder mode which is not support by the ATC-5000NG. | None |
| :INSTrument DATALINK2 | Not Supported | Datalink is a legacy transponder mode which is not support by the ATC-5000NG. | None |
| :INSTrument? | Supported | | :RGS2000:XPDR:MODE? |
| :INSTrument:SAVE | Supported | | :RGS2000:XPDR:SAVE |
| :INSTrument:RESTore | Supported | | :RGS2000:XPDR:LOAD |
| :INSTrument:CABLOS | Supported | | :RGS2000:XPDR:CABLOS |
| :INSTrument:CABLOS? | Supported | | None |
| :INSTrument:CABLOSBOT | Supported | | :RGS2000:XPDR:CABLOSBOT |
| :INSTrument:CABLOSBOT? | Supported | | None |
| :INSTrument:FORMAT | Supported | | None |
| :INSTrument:FORMAT? | Supported | | None |
| :INSTrument:COMTEST? | Not Supported | The SDX-2000 specific command COMTEST? directs the test set to report software versions and status. The comparable ATC-5000NG command is ATC5000NG:ATC:SW? | None |
| :INSTrument:STATE | Supported | | :RGS2000:ACCESS |
| **ATCRBS COMMANDS** | | | |
| :ATCRBS:MODE | Supported | Mode A, C, and AC. | :RGS2000:XPDR:MODE |
| :ATCRBS:MODE? | Supported | | :RGS2000:XPDR:MODE? |
| :ATCRBS:DOUBle | Supported | | :RGS2000:XPDR:TYPE 1 |
| :ATCRBS:DOUBle:SPACing | Supported | | :RGS2000:XPDR:DBL:P1TOP1 |
| :ATCRBS:DOUBle? | Supported | | None |
| :ATCRBS:SUBmode | Supported | | Multiple Commands for each submode |
| :ATCRBS:SUBmode? | Supported | | None |

| SDX COMMAND | SUPPORTED / NOT SUPPORTED | COMMENTS | RGS-2000NG EQUIVALENT (OR SIMILAR) |
|---|---|---|---|
| MODE S COMMANDS | | | |
| :MODES:MODE | Supported | | Multiple Commands for each submode |
| :MODES:MODE? | Supported | | None |
| :MODES:BURST | Supported | | :RGS2000:XPDR:ITABLE:BURST{:START \| :STOP} |
| :MODES:BURST:SQUITter | Not Supported | This is a burst-on-squitter command. The burst-on-squitter function is not supported by the ATC-5000NG. | None |
| :MODES:BURST:SQUITter:COUNT | Not Supported | Determines the number of squitters counted before a burst-on-squitter occurs. The burst-on-squitter function is not supported by the ATC-5000NG. | None |
| :MODES:BURST:COUNT | Supported | | :RGS2000:XPDR:ITABLE:BURST:COUNT |
| :MODES:BURST:GAP | Supported | | :RGS2000:XPDR:ITABLE:BURST:GAP |
| :MODES:BURST? | Supported | | None |
| :MODES:DOUBle:SPACing | Supported | | :RGS2000:XPDR:DBL:P1TOP1 |
| :MODES:DOUBle:SPACing? | Supported | | None |
| :MODES:INTERLace:RATIO | Supported | | :RGS2000:XPDR:DBL:IRATIO |
| :MODES:INTERLace:RATIO? | Supported | | None |
| :MODES:DIVersity | Supported | | :RGS2000:XPDR:ITABLE:<table entry>:ANTENNA:TIME |
| :MODES:DIVersity? | Supported | | None |
| :MODES:SUBmode | Supported | | Multiple Commands for each submode |
| :MODES:SUBmode? | Supported | | None |
| :MODES:TABLE | Supported | | :RGS2000:XPDR:ITABLE:NINT |
| :MODES:TABLE:STATE | Supported | | :RGS2000:XPDR:ITABLE:<table entry>:ENABLE |
| :MODES:TABLE:TYPE | Supported | | :RGS2000:XPDR:ITABLE:<table entry>:MODE |
| :MODES:TABLE:DATA | Supported | | :RGS2000:XPDR:ITABLE:<table entry>:UF |
| :MODES:TABLE:ADDRess | Supported | | None |
| :MODES:TABLE:STYLE | Not Supported | Defines the length of the interrogation. The command is not necessary as the interrogation length is determined by the selected uplink format. | None |
| :MODES:TABLE? | Supported | | None |
| :MODES:SYNC | Supported | | :RGS2000:XPDR:ITABLE:SYNC |
| :MODES:SYNC? | Supported | | None |
| :MODES:PREPULSE:POSition | Not Supported | Prepulse output is not supported by the ATC-5000NG. | None |
| :MODES:ADDRess | Not Supported | Allows the user to force the Mode S interrogation address to the received squitter address or an address programmed by the user. | None |
| :MODES:PREPULSE:POSition? | Not Supported | Prepulse output is not supported by the ATC-5000NG. | None |
| :MODES:ADDRess? | Not Supported | Query of the setting for Mode S address assignment to the interrogation (squitter or programmed address). | None |
| :MODES:EXTSQUITter | Not Supported | Enables or disables Mode S extended squitter operation. | None |

| SDX COMMAND | SUPPORTED / NOT SUPPORTED | COMMENTS | RGS-2000NG EQUIVALENT (OR SIMILAR) |
|---|---|---|---|
| :MODES:EXTSQUITter? | Supported | | None |
| **DATALINK COMMANDS** | | | |
| :DATALINK:TABLE | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:TABLE:STATE | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:TABLE:TYPE | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:TABLE:DATA | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:TABLE:ADDRess | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:TABLE:DELAY | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:TABLE:STYLE | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:TABLE? | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:SYNC | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:SYNC? | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:MESSage | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:MESSage? | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:MESSage:TYPE | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:MESSage:STATE | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:MESSage:SEGments | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:MESSage:MEASure | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:MESSage:TABLE | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:MESSage:TABLE? | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:MESSage:TABLE:TYPE | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:MESSage:TABLE:STATE | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:MESSage:TABLE:DATA | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |

| SDX COMMAND | SUPPORTED / NOT SUPPORTED | COMMENTS | RGS-2000NG EQUIVALENT (OR SIMILAR) |
|---|---|---|---|
| :DATALINK:MESSage:TABLE:ADDRess | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:MESSage:TABLE:STYLE | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:MESSage:COPY | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:DELAY:INITial | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:DELAY:SEGMENT | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:DELAY:CLOSEout | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:DELAY:MESSage | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:DELAY? | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| :DATALINK:GLOADDR | Not Supported | Datalink is a legacy transponder mode which is not supported by the ATC-5000NG. | None |
| **PULSE COMMANDS** | | | |
| :PULSE:VARiable | Supported | ATCRBS and Mode S | :RGS2000:XPDR:PULSE |
| :PULSE:VAR:AMPlitude | Supported | | :RGS2000:XPDR:PULSE |
| :PULSE:VAR:POSition | Supported | | :RGS2000:XPDR:PULSE |
| :PULSE:VAR:WIDth | Supported | | :RGS2000:XPDR:PULSE |
| :PULSE:VAR? | Supported | | None |
| :PULSE:INTERFerence:AMPlitude | Supported | | :RGS2000:XPDR:INTERFERENCE:AMPLITUDE |
| :PULSE:INTERFerence:WIDth | Supported | | :RGS2000:XPDR:INTERFERENCE:{P1WIDTH \| P2WIDTH} |
| :PULSE:INTERFernece:POSition | Supported | | :RGS2000:XPDR:INTERFERENCE:POSITION |
| :PULSE:INTERFernece:SPACing | Supported | | :RGS2000:XPDR:INTERFERENCE:SPACING |
| :PULSE:INTERFernece:STATE | Supported | | :RGS2000:XPDR:INTERFERENCE:STATE |
| :PULSE:INTERFerence? | Supported | | None |
| :PULSE:SLS:AMPlitude | Supported | | :RGS2000:XPDR:PULSE |
| :PULSE:SLS:POSition | Supported | | :RGS2000:XPDR:PULSE |
| :PULSE:SLS:WIDth | Supported | | :RGS2000:XPDR:PULSE |
| :PULSE:SLS? | Supported | | None |
| :PULSE:VAR:STATE | Supported | | :RGS2000:XPDR:PULSE |
| **GENERATOR COMMANDS** | | | |
| :GEN:FREQuency | Supported | | :RGS2000:XPDR:FREQUENCY |
| :GEN:FREQuency? | Supported | | None |
| :GEN:FREQuency:OFFset | Supported | | None |
| :GEN:POWER:TOP | Supported | | :RGS2000:XPDR:POWER |

| SDX COMMAND | SUPPORTED / NOT SUPPORTED | COMMENTS | RGS-2000NG EQUIVALENT (OR SIMILAR) |
|---|---|---|---|
| :GEN:POWER:TOP:CONTrol | Supported | | :RGS2000:SETTINGS:GENx:SIGNAL<br>:RGS2000:SETTINGS:GENx:MODE |
| :GEN:POWER:BOTtom | Supported | | :RGS2000:XPDR:ITABLE:<table entry>:ANTENNA:POWER<br>:RGS2000:XPDR:ANTENNA:POWER |
| :GEN:POWER:TOP:OFFset | Supported | | :RGS2000:XPDR:POWER |
| :GEN:POWER? | Supported | | None |
| :GEN:PRF | Supported | | :RGS2000:XPDR:PRF |
| :GEN:PRF? | Supported | | None |
| :GEN:TRIGger | Not Supported | Allows the user to enable a transponder, scope-sync, trigger output coincident with the interrogation or reply. | None |
| :GEN:TRIGger:POSition | Not Supported | Allows the user position the scope-sync trigger associated with an interrogation. | None |
| :GEN:TRIGger? | Not Supported | Returns the selected transponder, scope-sync, trigger source. | None |
| :GEN:SUPPressor | Supported | | :RGS2000:XPDR:SUPPRESSION |
| :GEN:SUPPressor:AMPlitude | Not Supported | Allows the user to select the suppressor-pulse amplitude. | None |
| :GEN:SUPPressor? | Supported | | None |
| :GEN:SUPPressor:POSition | Not Supported | Allows the user to select the suppressor-pulse position. | None |
| :GEN:SUPPressor:WIDth | Not Supported | Allows the user to select the suppressor-pulse width. | None |
| :GEN:EXTSYNC | Not Supported | Allows the user to modity the loacation of the external sync pulse around P1 of the interrogation. | None |
| :GEN:EXTSYNC? | Not Supported | Returns the selected loacation of the external sync. Not supported by the ATC-5000NG. | None |
| :GEN:SETUP:REFerence | Not Supported | Allows the user to select the clock reference source (internal or external). Not supported by the ATC-5000NG. | None |
| :GEN:SETUP:REFerence? | Supported | | None |
| :GEN:SETUP:PRF | Not Supported | Allows the user to trigger interrogations from an external source. | None |
| :GEN:SETUP:PRF? | Supported | | None |
| :GEN:SETUP:MODulation | Not Supported | Allows the user to select the DPSK modulation source (internal, external or mixed). | None |
| :GEN:SETUP:MODulation? | Supported | | None |
| :GEN:SETUP:GATE | Not Supported | Allows the user to control the position of the measurement gate. | None |
| :GEN:SETUP:GATE? | Supported | | None |
| :GEN:SETUP:VIDeo | Not Supported | | None |
| :GEN:SETUP:VIDeo? | Supported | | None |
| :GEN:SETUP:BOTtom | Not Supported | | None |
| :GEN:SETUP:BOTtom? | Supported | | None |

| SDX COMMAND | SUPPORTED / NOT SUPPORTED | COMMENTS | RGS-2000NG EQUIVALENT (OR SIMILAR) |
|---|---|---|---|
| **MEASUREMENT COMMANDS** | | | |
| :MEASure:TABLE | Supported | | :RGS2000:XPDR:ITABLE:SYNC |
| :MEASure:PULSE | Supported | ATCRBS and Mode S | :RGS2000:MEASURE:SETTINGS:PULSE |
| :MEASure:PULSE? | Supported | | None |
| :MEASure:FREQuency? | Supported | | :RGS2000:MEASURE:FREQUENCY? |
| :MEASure:POWER? | Supported | | None |
| :MEASure:POWERDBM? | Supported | | :RGS2000:MEASURE:PULSE:POWER? |
| :MEASure:REPLY:DF | Supported | | None |
| :MEASure:REPLY:DATA? | Supported | | None |
| :MEASure:REPLY:ADDRess? | Supported | | None |
| :MEASure:REPLY:TOP:ATCRBS? | Supported | | :RGS2000:XPDR:PREPLY? |
| :MEASure:REPLY:BOTtom:ATCRBS? | Supported | | :RGS2000:XPDR:PREPLY? |
| :MEASure:REPLY:TOP:MODES | Supported | | :RGS2000:XPDR:PREPLY? |
| :MEASure:REPLY:TOP:FIRST? | Supported | | None |
| :MEASure:REPLY:TOP:SECOND? | Supported | | None |
| :MEASure:REPLY:BOTtom:MODES? | Supported | | :RGS2000:XPDR:PREPLY? |
| :MEASure:SQUITter:DF? | Supported | | None |
| :MEASure:SQUITter:DATA? | Supported | | None |
| :MEASure:SQUITter:INTerval? | Supported | | None |
| :MEASure:SQUITter:REPLY? | Supported | | None |
| :MEASure:SQUITter:II? | Not Supported | Returns the decoded interrogation ident (II) field in hexadecimal format. | None |
| :MEASure:DELAY? | Supported | | :RGS2000:XPDR:DREPLY? |
| :MEASure:JITTER? | Supported | | :RGS2000:XPDR:JREPLY? |
| :MEASure:WIDTH? | Supported | | :RGS2000:MEASURE:PULSE:WIDTH? |
| :MEASure:SPACing? | Supported | | :RGS2000:MEASURE:PULSE:POSITION? |
| :MEASure:CODE? | Supported | | :RGS2000:XPDR:CREPLY? |
| :MEASure:GREY? | Supported | | None |
| :MEASure:ALTitude? | Supported | | :RGS2000:XPDR:AREPLY? |
| :MEASure:RANGE? | Not Supported | Returns the range provided by the UUT ARINC 568. | None |
| :MEASure:PRF? | Not Supported | Returns the UUT PRF. | None |
| :MEASure:STABility? | Not Supported | Returns status of UUT reply stability (jitter). | None |
| :MEASure:RXCONF | Not Supported | Selects RF input source (front or rear panel). | None |
| :MEASure:SQUITter:AIRPOS:DATA? | Supported | | None |
| :MEASure:SQUITter:AIRPOS:INTerval? | Supported | | None |
| :MEASure:SQUITter:SURPOS:DATA? | Supported | | None |

| SDX COMMAND | SUPPORTED / NOT SUPPORTED | COMMENTS | RGS-2000NG EQUIVALENT (OR SIMILAR) |
|---|---|---|---|
| :MEASure:SQUITter:SURPOS:INTerval? | Supported | | None |
| :MEASure:SQUITter:ACIDENT:DATA? | Supported | | None |
| :MEASure:SQUITter:ACIDENT:INTerval? | Supported | | None |
| :MEASure:SQUITter:AIRVEL:DATA? | Supported | | None |
| :MEASure:SQUITter:AIRVEL:INTerval? | Supported | | None |
| :MEASure:SQUITter:EVNTDRIV:DATA? | Supported | | None |
| :MEASure:SQUITter:EVNTDRIV:INTerval? | Supported | | None |
| :MEASure:SQUITter:ACQuisition:DATA? | Supported | | None |
| :MEASure:SQUITter:ACQuisition:INTerval? | Supported | | None |
| :MEASure:AVGOFF | Supported | | None |
| :MEASure:AVGON | Supported | | None |
| :MEASure:AVG? | Supported | | None |
| :MEASure:MINMAXREset | Supported | | None |
| :MEASure:AVGPARAMeter | Supported | | None |
| :MEASure:AVGPARAMeter? | Supported | | None |
| :MEASure:AVGPARAMeter:SAMPLES | Supported | | None |
| :MEASure:MINDELAY? | Supported | | None |
| :MEASure:MAXDELAY? | Supported | | None |
| :MEASure:MINJITTER? | Supported | | None |
| :MEASure:MAXJITTER? | Supported | | None |
| :MEASure:MINWIDTH? | Supported | | None |
| :MEASure:MAXWIDTH? | Supported | | None |
| :MEASure:MINSPACing? | Supported | | None |
| :MEASure:MAXSPACing? | Supported | | None |
| :MEASure:MINFREQuency? | Supported | | None |
| :MEASure:MAXFREQuency? | Supported | | None |
| :MEASure:MINPOWER? | Supported | | None |
| :MEASure:MINPOWERDBM? | Supported | | None |
| :MEASure:MAXPOWER? | Supported | | None |
| :MEASure:MAXPOWERDBM? | Supported | | None |
| :MEASure:PATH | Supported | | :RGS2000:MEASURE:SETTING:TRIGGER:ANTENNA |

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English

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